# EDUCATION.

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## *EDUCATIONAL NEEDS OF URBAN CIVILIZATION.*[1]

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In 1790 only three and one-third per cent. of the population of the United States lived in cities of over eight thousand people. Twenty-nine persons out of thirty lived in small towns or rural districts. Sixty years later, in 1850, the city population had increased to twelve and one-half per cent., or one-eighth, having doubled twice. Thirty five years later, the urban population has doubled again, and now one-fourth of the population live in cities of varying size from eight thousand to a million.

If we count the suburban populations so connected by railway to the cities that their form and mode of living is urban, we may safely estimate the city population at one-half of the total. This urban movement, extending throughout the present century, is not confined to the United States, but extends to all that part of the civilized world affected by productive industry and the invention of labor-saving machinery.

The power-loom, the steam-engine and its uses in the mill and on the railroad, have initiated this urban development. The railroads in the United States aggregated in 1870 about 100,000 miles, and in the fifteen years since have increased to 200,000 miles. With the labor-saving machine came an immense stimulus to associative effort. Food, clothing, and shelter could be obtained in such larger quantities and at so much less expenditure of manual labor that every individual became rich in prospect. Just as the discovery of the California gold mines attracted a steady current of migration, and

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the distinction between rich and poor seemed no longer a fixed and cruel gulf requiring the sacrifice of an entire life to cross to the other side, — so the superfluous masses of the population heard gladly of the new spinning and weaving mills, and flocked to the villages where they could obtain steady employment and such wages as seemed to them a golden harvest. Before 1760 they had formed an abject class of rural population, owning no land and dwelling in rude hovels, with only such food and clothing as could be procured with the small wages given them for occasional services on the farms near by.

Instead of occasional seasons of work and most inadequate wages on the farms, this population obtained in the newly-established mills of Manchester and Birmingham a constant employment and remunerative wages, — better dwelling, better food and clothing, and a plenty. Hence villages grew and continued to grow wherever water-power could be obtained. Soon there were cities where there had been hamlets. Then the manufactured products demanded trade and transportation, reaching out to the far-off cotton-fields in Alabama or the Indies, and a vast army of men received employment as sailors and teamsters and traders, — bringing in the supply of raw material, and taking out the products of the mills.

Seeking new markets for the ever-increasing production, it became the interest of English commerce to establish relations with all lands not yet occupied with productive industry. It offered a stimulus to the furnishing of some staple raw material, and gave in compensation articles of manufacture from its looms, its hardware mills, or its distilleries. Industries began in remote lands, and colonization soon belted the globe. Meanwhile the steam-engine had re-enforced the water-fall, and the railroad and locomotive-engine relieved the teamster; the steam-boat succeeded the flat-boat, and largely took the place of the sailing-vessel.

The might of man, aided by elemental powers of nature, had so far exceeded his powers as manual laborer that it was reasonably estimated in 1870 that the 8,000,000 laborers of Great Britain directing machinery moved by the motive-power of steam produced an annual amount of manufactures equal to that of 300,000,000 of laborers; or the entire laboring capacity of the human race previous to the invention of the power-loom and the steam-engine: Hence the accumulation of wealth in the countries that have adopted productive industry. Gladstone estimated the increase of wealth that could be transmitted from one generation to the next to be so enormous in our time that in the fifty years from 1800 to 1850 the world had produced as much

permanent wealth as during the entire eighteen hundred years previous to this century. The rate of progression was so rapid that in the next twenty years (1850–1870) the accumulated wealth of the world had again doubled. The multiplication of steam-engines and the perfecting of machinery have been supposed to double our productive power once in seven years.

The emancipation of the laboring classes from the proletariat condition of landless and shiftless dependency on the farms, and their elevation into an industrious village population working in the mills, has continued in the direction of better food, clothing, and shelter, and higher wages with fewer hours of labor.

Our wise and careful statistician and political economist, Edward Atkinson, shows us that forty years ago the average wages in the cotton mills of Massachusetts amounted to $175 per year for each laborer, while at present they amount to $287, an increase of sixty-four per cent. Meanwhile the hours of daily labor have decreased from the frightful number of thirteen to the reasonable number of ten. The purchasing power of money has not become less, but it is far greater in the items of manufactured goods and in the great staples of food. Cloth is nearly twenty-five per cent. cheaper than it was forty years ago. The improvement of railway transportation,—thanks to Vanderbilt's invention of consolidated systems of railway lines,—has rendered it possible that wheat-flour enough to feed 1,000 people in New York for one year may be transferred from the wheat-fields of Dakota to the mills of Minnesota, and thence to the Atlantic sea-coast at a cost equivalant to the labor of one and one-half men With the labor-saving inventions for the farm, one Dakota farmer can annually raise wheat enough to supply 1,000 men with food for a year.

Counting the cost of the flour-mill and the baking and distributing of the bread in New York, 1,500 miles distant, and making a generous estimate, Mr. Atkinson shows that ten men can feed 1,000. Two men can furnish iron for 1,000 of a population that consumes more iron than any other on the globe. Four men can furnish cotton and woollen cloth for 1,000. One shoe-maker can furnish them in shoes; and so on through the catalogue of necessary supplies. Combination of man with man, and of people with people, is essential to this form of industry that compels the elements to toil and spin for it, and annihilates distance.

Each human being is given a better chance. Such is the lesson of industrial civilization, — always a wholesome lesson to study, and never more profitably studied than in your paragon of world-expo-

sitions, displaying human inventions and productive industry and the methods of education of our schools,— set up here in this proudest of our cities at the gates of the sea, and under its semi-tropical sun.

The growth of cities finds its occasion in productive industry by the aid of machinery, which, again, has arisen through the application of natural science by invention. Whereas, formerly, the whole population had to struggle in a hand-to-hand fight with nature for a meagre subsistence, it is now aided by machinery, and the few can supply the many with raw materials and leave two-thirds of the population to engage in manufacturing and the collection and distribution of goods.

The manufacturers, and especially the collectors and distributors of goods, dwell in cities. Inasmuch as the conquest of nature by the aid of machinery is a progressive enterprise, constantly gaining ground, and losing none, it happens that the city populations continue to increase in comparison with the rural populations, and this relative increase and predominance of the urban over the rural will go on indefinitely.

The amelioration of the city progresses apace. The modern city is not the ancient. With the modern miracle of rapid transportation, the effective extent of the city is indefinitely increased. One-half of the business population of Boston goes out to rural villages at night and returns on the numerous railways in the morning. Whatever is salubrious and delightful in the country residence is thus obtained without losing the advantages of combined effort of the city.

The problems of education in our time concern directly this movement in civilization which we here have described as urban or city development. The education of the family, the trade, the nation, and the church has to be reinforced by the education of the entire population for a limited period in the school. Other ages and other civilizations have been able to dispense with the school to a greater or less degree, especially with their proletariat classes. The modern city civilization cannot neglect school education with impunity.

Let us look at the requirements of the new citizen of the world. First, it is obvious, without tedious consideration and minute investigation, that there is a necessity of general education in schools to such an extent as to fit each individual to direct and manage machinery. Not a special apprenticeship to some particular machine is required, but a general insight into the conditions and laws of mechanism in general. Natural philosophy, or physics, therefore, and mathematics, especially arithmetic and geometry, are required. Whatever gives man a knowledge of nature, is useful as scholastic preparation for urban civilization.

The art of enumeration,—the science of arithmetical calculation,—is an essential prerequisite to the conquest of nature. A theoretical mastery precedes a practical mastery, — a knowledge of how it is to be done comes before the application of such knowledge. Hence arithmetic holds the place of honor in the primary school curriculum next to reading and writing, and with them makes up the famous "three R's," universally regarded as the indispensable rudiment of all scholastic knowledge. Arithmetic and algebra formulate for us the necessary logical laws of time and succession, while geometry and trigonometry formulate in like manner the logical laws of space. Space and time are the fundamental forms of material existence. With a knowledge of the *nature* of time and space as formulated in mathematics, man goes forth to take possession of the world and to make things serve his thoughts.

Man may work at hand-work to a limited degree without a knowledge of numbers. But the directive intellect must be near by to control the hand, and the directive intellect must know arithmetic. All division of natural objects, — all analysis, — presupposes the idea of number in the mind of the workman. "Divide and conquer." All combination, too, presupposes such knowledge of number. "Combine and conquer." The rational direction of hand-labor demanding a knowledge of arithmetic either in the laborer, or if not in him, then in an overseer appointed above him, it is clear that the management and direction of a machine requires a constant use of arithmetical knowledge on the part of the workman.

The age of productive industry is marked by the ascent of the laborer from the position of mere drudge to the position of directing intellect. Formerly it was his muscle that furnished the motive-power, and he was trained to become all hand and no brain. In the urban phase of civilization, he is required to be primarily a directing brain, and only secondarily a laboring hand.

Mathematics and natural science are necessary to the laborer in the age of machinery. The more knowledge the school has given him, the higher his rank as directive power. The laborer who is all hand and no brain has little or no chance in this newest phase of civilization except for a subsistence through the alms of his fellow-men; he can be little more than a pauper. The weaver who uses the hand-loom, — and even the hand-loom is a wonderful human invention, — cannot earn a sufficient support. The weaver at Lowell earns $287 a year; he produces, in a year, 28,000 yards of cloth. The weaver with a hand-loom produces less than 600 yards of cloth, and earns less than $6 a year!

The most important characteristic of the age of machinery is its continual progress from the simple machine to the complex one. The simple machine is invented just at the point where division of labor has arrived at the extreme of simplicity in the application of the hand. When the hand-labor is so simple as to require no special skill or intellectual adaptation, then the simple machine may be invented to take the place of the hand. After a series of simple machines are invented, the next step is the combination of these machines into one. Think of the progress from the old fashioned printing-press to the newest style of cylinder printing press of Hoe's patent! The old printing-press enabled one man to make as many books as 400 copying scribes. The new printing-press works by steam, and reduces the human labor to one-fiftieth of the amount required by the old hand-press.

The machine changes the demand for muscular labor to a demand for brain-labor. At first muscle is primary and brain secondary; then brain becomes primary and muscle secondary. The simple machine makes educated brain as important as muscle. But the progress of machinery in complexity of structure makes greater and greater demands on versatile intelligence and less demands on muscular strength.

This being the trend of our civilization, we see that universal education in the school has become very important already, and that it will soon become utterly indispensable in all civilized countries. It does not matter what the form of political government may be, so far as this demand for common schools is concerned, the age of science and the age of labor-saving machinery carries to all countries the same dilemma: Either educate your people in common schools or your labor will not compete with other nations whose people are educated up to the capacity of inventing and directing machinery. If you cannot compete with other peoples in the matter of the use of machinery, you must recede from the front rank of nations in every respect.

Such reflections as these force themselves on our attention when we contemplate the exclusively material phase of urban civilization. It is, however, only when we turn to look upon the spiritual phases of this new order of civilization that we see the full force of this demand for school education and for studies of another sort than mathematics and physics.

The two R's, reading and writing, must open the windows of the soul that look out upon the world of literature,—the world created by human genius for the revelation of man's insight into his own nature.

Literature reveals to man his ideals of what ought to be; it elevates the banner of his march toward the beautiful good and the beautiful true. It shows the ideal in conflict with the real, and educates man's insight into the distinction of good from evil. Through literature the genius of the race, appearing in exceptional individuals, instructs the multitude, and lifts all up from their lower level of prose reality to the high planes of insight into the ideal of the godlike,—the divine-human.

The school teaches how to read, and this is the primary, indispensable condition for participation in this higher world of ideal humanity. It then introduces the pupil to the *what to read*, and shows him how to master these treasures of literature, and to take possession of the revelations made for his use.

In the next place, on this spiritual side of education, the school opens the windows of the soul that look out upon human history,—upon the realm of the realized will of mankind. History is the biography not of individuals *as* individuals, but of institutions, the gigantic combinations of men, especially as nations.

Each man in his isolated peculiarity is only a partial and imperfect realization of the humanity that is in him. He is mostly a possibility; he has realized but little of what is in him. But when he looks out upon his community, upon his nation, upon the entire race, through the window of history, he beholds his inner self reflected in a gigantic reality. He learns to know his greater selves,—those selves that are too great in all-sided completeness to be realized in a single individual life, and which, therefore, take on reality through individual combination, thus forming the great institutions of the race. These cardinal institutions are the family, civil society, the state, the church. Each of these institutions is beneficent toward the individual. Each institution reveals itself in history as an instrumentality by which a whole combination lends its aggregate aid to each individual member. The family enables the elder to assist the younger; the mature, the immature; the well and strong; the sick and weak. It equalizes age and bodily condition. It performs a miracle; each gives only its feeble might to the whole, but is blessed in return for its gift by the multiplied gift of the whole. All institutions perform this miracle. In civil society the individual toils to produce a special product, something here and now, limited by the climatic conditions, and by his own feeble strength. But in return for this gift of his day's labor the market of the world allows him to take a share of all productions of all climes, brought to him by the commerce of all nations,—a perpetual process of united human endeavor.

In the state each individual offers his puny aid to the whole, and the whole in return protects and defends him and re-enforces his might by the might of fifty millions. In the church he gives his sympathy to his fellow-men, and assists at celebrating the fact of the revelation of the God-like in divine-human form. He aids the faith and hope of his fellow-men by manifesting his own faith and hope, but he receives the aggregate aid of the entire church. His contribution is finite, but he receives in return an infinite gift.

The school opens the window of the soul that looks out on human history, and lets the pupil contemplate in their unity and details these giant forms of human nature, the institutions of the world, in their genesis, development, and consummation. Besides these windows of the soul that behold respectively the revelations of human nature in literature and history, the school opens also another window, revealing to man immediately his own reason, his logical and psychological constitution; for this is what is essential in the study of grammar. Each people reveals its experience and its solution of the problem of life, in its language. The vocabulary of any language reveals to us the inventory which its people have made of the world and the conceptions they have formed of the purpose of the whole. The logical framework of language, — its grammar, — goes beyond this, and brings to light and to consciousness the subtlest operations of the soul itself.

Any training in grammar is a training in the power to see essential principles themselves. All grammar teaches the pupil to distinguish things from mere relations and from qualities; functions and actions from substances and dead results. How else can the pupil classify the words in the language under the several "parts of speech," except by thinking of their meaning and use and discriminating their several values as expressions of substance and attribute and relation, of subject and action and function, of independence, dependence, and co-ordination? And what is such training in discrimination but training in pure thought? What is all thinking in the world but an application of such logical discrimination as one gets in the mastery of grammar?

Thus the school opens five windows of the soul, — two directed to outward nature in time and space; one window looking at the mathematical conditions of inorganic nature, and another to the processes of organic nature. The elementary school teaches these under the names of arithmetic and geography.

There are three windows looking toward human nature, opened respectively by the study of literature, history, and grammar, look-

ing out upon the æsthetic ideal in poetry and art, the will-realization in history, and the theoretic nature, or pure essence of mind, manifested in the grammatical structure of language.

It may be evident enough that the school has its important function in opening these five windows of the soul, and in training its pupils into such habits of self-control and industry as will make them co-operative with their fellows for the common good. Such would seem to be the general function of the school, and wholesome under any form of civilization.

But our question is, What is the demand of the new civilization whose instrumentality is the labor-saving machine? The answer to this question is to be found partly in the political issues of this civilization, and partly in its industrial issues.

Machinery becomes possible through extreme division of labor, and consequently through the commercial relations of interdependence. Again, the direct effect of machinery is interdependence and close commercial and social relations. To make the increased rates of production possible, there must be constant supply and constant demand, and this can only be secured in the world-market.

In order to make this wide world-commerce, there must be rapid transit, — that of the railroad and steamship. In order to direct and control and adjust the supply and the demand, there must be a constant and instant survey of the existing conditions of production and consumption in all parts of the world. Each must see the whole. Hence exist the telegraph and the daily newspaper.

The urban, or city civilization, is a newspaper civilization, if we characterize it by the most important instrument that it has invented. Into the daily newspaper as into a magic mirror the modern citizen looks, and sees the spectacle of the doings of the entire world. The movements of commerce; the transactions of the various national governments in so far as these are outside of routine; extraordinary crimes and retributions; the events of society; the doings in science, art, literature, the drama, and in an indefinite domain of personal gossip, — all these are presented to the citizen, and he regularly adjusts himself each morning to his world-environment.

Formerly, before the railroad and telegraph had rendered possible the daily newspaper, each person adjusted himself to his narrow environment through village gossip which he heard at the neighboring inn or at the clubs. Now, instead of *village*-gossip, he reads *world*-gossip without leaving his fireside or breakfast-table.

In the past civilization each section grew more sectional, except in times of great wars that mingled the soldiery of different localities.

In the modern civilization, the daily newspapers of all lands have substantially the same presentation of the world, and reflect more and more nearly the same views. The newspaper is therefore a sort of world-court, in which passing events are brought up daily for judgment.

Under these circumstances there arises into power the majestic presence of public opinion, — a might which controls the actions of kings, the deliberations of parliaments, and the ballots of electors. Public opinion is become the educator of nations. Formerly, through ignorance of the effect that overt acts might have, nations were often precipitated into war. Now it is easy for statesmanship to feel the pulse of nations in advance, and by prudent diplomacy avoid extreme issues.

The newspaper is the organ of public opinion, and in this capacity it tries and judges criminals, and it punishes all manner of sin that escapes the whip of the law. It rewards good deeds, and sounds the trumpet of fame before the favorites of public opinion. The newspaper popularizes science and literature. It has a page for fiction, in which the modern literary artist paints the ideals of society with halos of glory or with satire and caricature.

When each human being beholds the same spectacle beheld by all others, and assists all in forming the high court of public opinion, there is realized at once the most powerful educational means ever invented for uniting men in thought and sentiment. Even the old-fashioned village gossip was a powerful means in its way to eliminate from the individual his whimsicalities and idiosyncrasies. The modern public opinion is based on world-gossip, and is far more potent for good. Mrs. Grundy's opinion becomes dignified and oracular when it voices the verdict of nations.

One consequence of this new realization of the magic mirror in which all humanity is reflected, is the rise of the true cosmopolitan spirit, — a mutual toleration of all peoples. A profounder habit of considering one's fellow-men sees the same humanity under strange disguises of costumes, national customs, and diverse languages.

These thoughts regarding the newspaper as the characteristic instrumentality of the age of invention leads us back to our central theme, What sort of school education does the newspaper imply? Certainly we may answer, it implies a universal reading public and universal elementary education in the school.

The newspaper reader, if an intelligent one, is well versed in geography and knows the technique of the sciences. The newspaper itself cannot exist in an illiterate community, nor can its public

opinion penetrate such a community. There is demanded a general training in the curriculum of the school, and when fitted for the newspaper and the library, the citizen is in a way to continue his cosmopolitan education for life.

The newspaper civilization is moreover essentially inclined to local self-government. It is a government *of* the people, *by* the people, and *for* the people. Hence a city civilization demands universal school education for the highest of all secular reasons; it is necessary that its citizens shall be law-reading and law-obeying,—but still more is it necessary that its citizens shall be intelligent electors, and able to make their laws.

The occasion for educated intelligence in a self-governed community is constant and unavoidable. But our industrial age increases the demand for educated directive power tenfold by its great and small business combinations. Companies for transportation, for insurance, for banking, for trading, for exporting and importing, for various forms of manufacturing and mining,—all large combinations,—demand as essential prerequisite, educated directive power, and the school only can furnish certain of the qualifications necessary. With a scattered rural population it is not absolutely indispensable that universal school education exist. A sort of patriarchal rule may prevail, and the intelligence of one brain suffices for many hands. Urban civilization is radically different in this regard, and no patriarchal rule ever sufficed for a city. Demagogism, with its bottomless abysses of corruption, yawns beneath a city where the schools do not provide for all classes of people.

Such are some of the reflections suggested to us as members of the Educational Congress, as we look upon the wonderful exposition of the industrial civilizations of the world gathered here at the instance of the noble and enterprising people of this great urban centre of the South and Southwest.

New Orleans is the key to the commerce of the Mississippi valley so far as it is by river or ocean. That it will also be the radiating centre of the highest and broadest educational influences throughout this vast region may be safely prophesied by the careful observer of its excellent foundations for primary and higher education, and by him who notes the deep earnestness and wise forethought of the men to whom has been entrusted their administration.

# THE PHILOSOPHY OF ELOCUTION.

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A Philosophy of Elocution entirely satisfactory to intelligent thinkers has not yet been presented. The nearest approach to it is the system of Delsarte, now so popular with a large number of excellent teachers in this country. Presenting many happy thoughts, felicitously expressed, and many suggestions containing germs of truth, the system of Delsarte is restricted almost entirely to the subject of gesture, while for the ordinary reader and speaker the voice is of more importance than the movements of the body. Besides this inadequacy, the system is vitiated by an incorrect classification of the powers of the mind, or at least by a classification that only approximates the accepted classification of psychology.

That a true philosophy of elocution is possible, no one can doubt; and that there is a demand for such a philosophy is evident from the avidity with which the Delsarte system, with all its limitations, has been embraced by many leading teachers, and the enthusiasm which it has inspired. Elocution is an art, and all arts have their basis in, and grow out of, scientific principles. These principles give life and significance to art and determine the form of its expression. Of these principles the artist may be unconscious, though they live in his work; but when revealed to his understanding they give added skill and power to his productions. The highest art should be conscious of the methods by which its effects are produced; and the principles which underlie these methods, when formulated and systematized, constitute the theory, or philosophy, of the art. Art may begin, — it usually does, — unconscious of the principles which guide the artist; but it attains its highest achievements only by a discovery and a conscious apprehension and appreciation of these principles.

This is especially true in the art of delivery, or elocution. Now and then a great genius arises who thrills an audience as by a spell of magic and yet seems unconscious of the secret of his power; but these are rare exceptions to the rule. The great orators of antiquity, no doubt, had clear conceptions of the means by which their effects were produced. The art of oratory was taught and studied; and the

great orator was the result of training and culture as well as of natural gifts. Cicero and Quintilian, both distinguished in oratory, have left on record their views of the methods of training required to produce the eloquent and effective speaker; and in every subsequent age all the distinguished orators were the product of education and practice. In all these schemes of instruction there is a clear conception of the principles which contributed to their success. The question before us is, Can a philosophical basis be found for these principles of delivery by which they can be co ordinated and unified, and thus be made more potent in the work of culture and training? Such a co-ordination and unification will give us a philosophy of the art; and the object of this paper is to suggest what is thought to be a true philosophy of elocution.

The word "elocution," it will be noticed, is used as signifying the art of delivery. This is the term now generally used to designate the expression of thought by speech and gesture. It is intimately related to oratory; indeed, in their primary signification, the two words are almost identical in meaning. Oratory now, in one sense, includes more than elocution, as it has reference not only to the manner of delivery, but also to the matter delivered. So far as delivery is concerned, however, elocution embraces more than oratory, as it includes reading, recitation, debating, lecturing, etc.; that is, all forms of expression by voice and gesture, except singing. Of the several arts of expression, — sculpture, painting, music, and literature,—elocution is most nearly related to literature. While the latter is the expression of thought and sentiment in written words, elocution is the expression of the same in spoken words, accompanied by gesture. Literature may be delivered by voice and gesture, and such delivery is elocution.

With this brief statement of the nature of elocution, we proceed to unfold what seems to be a correct conception of the philosophy of the art. This philosophy consists of two things: first, of a *logical analysis* of the several parts of the subject; and second, the *laws of expression* derived from one or more fundamental principles.

## FUNDAMENTAL DIVISIONS OF ELOCUTION.

We inquire first, What are the fundamental conceptions of the art of elocution? These will appear from a brief analysis of the subject. A speaker stands before his audience; let us notice the means by which he produces his effects. First, there is something to be expressed. This something, — a thought or sentiment or purpose, invisible or intangible, lies in his mind and is produced by it.

The mind, it is thus seen, lies at the basis of expression; it is the fundamental element of delivery. It is the source of what is to be uttered, and gives form and sigificance to the utterance. The first element of elocution, therefore, is what we may call the *Mental Element.*

The mind coins its thoughts into words, and the abstract and invisible mental product becomes concrete and sensible These words spring from the lips, and, borne on waves of air, fall upon the ear and reveal to the listener the thought of the speaker. The idea which a moment before was in one mind is now, by the power of winged words, created in the minds of a hundred listeners. The sentiment that throbbed in the heart of the speaker is awakening similar emotions in other hearts; and the purpose of the orator is the purpose of many wills that are ready to act in unison with his own. Mind has touched mind; heart has thrilled heart; will has moved will; and the instrument by which these effects have been produced is the human voice. Hence the second element of elocution is that of the voice, or the *Vocal Element.*

As the mind incarnates itself in voice, it is at the same time manifesting itself through the physical system. The attitude of the body, the motion of the hands, the play of the muscles of the face, all express the action of the soul. So expressive is this language that it often produces as deep an effect as the voice itself. Indeed, it was a question between Cicero and Roscius which could produce the greater effect on an audience,—the one by words, or the other by gesture. In the earlier days it was a common thing to have an entire play given in pantomime; and the power of an actor or an orator is even now largely due to gesture and facial expression. Mind speaks through the body as well as through the voice; and it is thus clear that a third element in elocution is that of the physical nature, which we may call the *Physical Element.*

This analysis is made from the standpoint of the speaker, and if we analyze from the standpoint of the hearer we reach the same result. A speaker stands before us, and we are first impressed with what we see through the sense of sight. His form, his attitude, the expression of his face, etc., all make a certain impression upon us and incline us to listen with more or less attention before he has uttered a word. Here, then, we have the *physical element.* Next we hear the sounds that fall from his lips, and are moved favorably or unfavorably by the quality and modulation of his voice. Here appears a second, or *vocal element.* Through these two elements,—the one appealing to the eye, the other to the ear,—we reach the though

of the speaker, and our heart and mind are moved in unison with his own. Here we have the *mental element* of elocution. This analysis, from the standpoint of the listener, reaches the same three fundamental elements, though in a inverse order.

The philosophy of expression, therefore, recognizes three fundamental divisions of elocution. Vocal impression is a trinity of mind, voice, and body. These three elements, unified in delivery, present three distinct subjects for consideration in the Philosophy of Elocution. When we come to discuss the art of delivery, we shall find the object to be twofold, — *expression* and *impression*; the expression of the idea of the speaker for the purpose of impressing the mind of the hearer. This object is accomplished, first, by the voice, which speaks to the sense of hearing; and second, by the body, which speaks to the sense of sight. Thus there is a double expression: that of voice and body, and a double impression, through the ear and the eye. These two forms are unified into one effect by the controlling power of the mind, and we thus have the *first grand trinity* in the Philosophy of Elocution.

We emphasize this fundamental conception of the subject in an outline as follows:

Philosophy of Elocution. { 1. Mental Element. 2. Vocal Element. 3. Physical Element.

### I. — THE MENTAL ELEMENT.

The philosophy of elocution begins with the Mental Element, as this is the foundation of the other elements. Voice and gesture both owe their origin to the mind, and derive their signification and power from it. Voice has no meaning unless the soul is in it; a gesture is significant only as it is a symbol of thought and feeling. Soul meets soul in expression; and voice and gesture are but the bridges across the chasm that separates our minds. The bridges may be finely constructed, but they are only of value as they aid the royal procession of thought in passing from the mind of the speaker to that of the hearer.

The importance,—yea, the supreme value,—of the mental element in the philosophy of elocution will be seen by two more specific statements: first, *the mind is the source of all expression.* The idea to be expressed must first exist in the mind. Born in the palace of the brain, it seeks expression to be born again in other brains. The mind thus gives birth not only to thought, but to the expression of thought, and must consequently determine the form and nature of

expression. The art of elocution has thus a subjective origin; it originates within the soul, and not without it. Elocution is not something acquired; not something put on, as we put on a coat or dress, for the sake of appearance. This latter idea, which seems to be a popular one, and which has done so much to degrade the art, is contradicted by the above analysis. The finest voice and the most graceful action not only fail of their purpose, but become ridiculous unless they are inspired with soul-power. The harshest voice and the most uncouth gestures may be so filled with spiritual afflatus that defects of the medium may be entirely overlooked in appreciation of the great soul that is speaking to us. This principle lies at the foundation of all effective and artistic expression in the department of elocution, and, when properly understood and applied, will banish much that is artificial and mechanical in delivery, and give a dignity to an art that is too much undervalued.

Second, *the principles of delivery must have their source in the mind.* As the mind speaks through the voice, the principles governing vocal utterance must be determined by the nature of mental activity. Also, since gesture is but the mirror of the working of the soul, we must go back to the soul to ascertain the principles of gesture. Only as we understand that which gives birth to thought and sentiment can we expect to derive and understand the laws which govern the expression of thought and sentiment. It is thus evident that all the principles which govern the activity of the other two elements, the vocal and the physical, must be derived from this primary one, the mental element.

In the analysis of the mental element for the purposes of elocution, three leading ideas present themselves. We need to know, — first, the nature of the mind; second, the nature of its products; and third, the action of the mind in delivery. The consideration of the nature of the mind will include its faculties and their operations; the products of the mind related to elocution are included under the head of Literature; the action of the mind in delivery is properly the art of elocution. This gives us a threefold division under the Mental Element; viz., the Nature of the Mind, the Products of the Mind, and the Mind in Delivery.

I. *The Mind.*—The mind embraces three great classes of faculties, —the Intellect, the Sensibilities, and the Will. The Intellect is the power of thought; the Sensibilities are the powers of feeling; the Will is the power of choice and volition. The mind is thus a triunity, a three in one, a trinity of activities or manifestations of an indivisible spiritual unity. It is manifest that this fundamental trinity

of the human soul will give a threefold division to the art of expression, and these trinities frequently meet us in our philosophical investigations of the subject.

The Intellect embraces several classes of faculties, as Perception, Memory, Imagination, Understanding, and Intuition. The Understanding includes Abstraction, Generalization, Judgment, and Reasoning. In a full discussion of the mental element, these should be described in detail, but such discussion is foreign to our present purpose. The Sensibilities embrace three classes of activities, — the Emotions, Affections, and Desires. The Will also includes several forms of activity. These three classes of faculties give rise to many products. The products of the Intellect may all be embraced under the general term *thought;* the products of the Sensibilities, under the term *feeling*, or *emotion;* and the products of the Will, under the term *volition*, or *action*. These three classes of mental products enable us to classify the forms of literature, and give rise to distinct and definite principles of delivery.

Over all these faculties of the mind rises the grand attribute of Rationality, the faculty called Intuition, or the Reason. This is the crown of the soul, the overreaching dome of the grand temple of the mind. From out the depths of this great faculty emerge the three grand conceptions of the soul, — the True, the Beautiful, and the Good. These ideas are intimately related to the threefold division of the faculties of the mind. Indeed, each one of these ideas is the sphere for the activity of one of the three classes of mental faculties. Thus the sphere of the Intellect is the True; the sphere of the Sensibilities is the Beautiful; the sphere of the Will is the Good. The product of the Intellect in the domain of the True is *Science;* the product of the Sensibilities, united with the Imagination, in the sphere of the Beautiful is *Art;* the product of the Will in the domain of the Good is *Virtue*, or *Character*.

These three grand ideas, or spheres, of mental activity lead to another conception of the threefold nature of man. The faculty working in the domain of the True is the intellect, and man is thus conceived as an *intellectual being*. In the same way, growing out of the soul's relation to the Beautiful, we have the *æsthetic nature* of man; and growing out of the relation of the soul to the Good, we have the *moral uature*. These three natures are distinct in their character, and have a special significance in art. The intellectual nature is simple in its character, involving only the act of the first class of faculties which we have included under the Intellect. The æsthetic nature is dual in its character, involving an act of the Reason and the Sensibilities. Thus the reason apprehends beauty,

the Sensibilities admire, appreciate, and enjoy it. The moral nature is triune in its character, consisting of ideas, feelings, and will. The Reason apprehends the Good, the Sensibilities feel the obligation to do it, and the Will puts forth the executive volition in accordance with the spiritual imperative. In mathematical phraseology the intellectual nature is a unit; the æsthetic nature = the intellect + the sensibilities; the moral nature = the intellect + the sensibilities + the will.

These divisions lead also to the recognition of three great classes of mental products. Working in the domain of the True, the intellect searches for what is the truth, and systematizing it, we have the product which we call Science. Working in the domain of Beauty, the soul endeavors to embody its ideals of the Beautiful in concrete form, and we have the productions of the Fine Arts. Working in the domain of the Good, the soul embodies its ideas of the Right into living action, and thus attains to *virtue*, the final product of which is *Character*.

Out of these distinctions arise three fundamental elements of art. These are Truth, Beauty, and Strength. To satisfy the intellect, there must be *truth* in a work of art; to satisfy the sensibilities, there must be *beauty;* to satisfy the will, there must be *strength*. These three elements belong to and become the criteria of every art, but they are especially applicable to literature and elocution. Intellectual sentiment in delivery requires only *truth;* emotional sentiment requires both *truth* and *beauty;* while that which relates to the will in moral nature must possess the three elements, *truth*, *beauty*, and *strength*. These elements are the three graces of artistic expression; they are indeed the divinities of art. In every work of high art these divinities must dwell and shine forth with a celestial radiance. Tennyson voices the principles of art in felicitous phrase when he says,—

> "Beauty, Good, and Knowledge are three sisters
> That dote upon each other, friends to man,
> And never can be sundered without tears."

Gathering together these ideas and elements which we have reached by a philosophical analysis, we have the following outline of the mind in expressions which we may call the

PSYCHOLOGICAL TRINITIES OF EXPRESSION.

| *The Mind.* | *Products.* | *Spheres.* | *Natures.* | *Obj. Products.* | *Art Elements.* |
|---|---|---|---|---|---|
| Intellect, | Thought, | The True, | Intellectual, | Science, | Truth, |
| Sensibilities, | Feeling, | TheBeautiful, | Æsthetic, | Art, | Beauty, |
| Will. | Volition. | The Good. | Moral. | Character. | Strength. |

These *psychological trinities* possess a deep significance in the conception and practice of the art of elocution. They touch every point of the subject, mould all the forms of delivery, and are a source of deepest inspiration to the artist.

II. *Literature.* — A second division under the mental element is that of the expression of the mind in languages, or Literature. A knowledge of the nature of the mind and its operations gives us an immediate and clear understanding of its expression in literary forms. All literary composition is the expression of the mind, and the forms of literature are thus determined by the nature of the mind. Literature can thus be classified from a subjective stand-point; we can know the forms it must assume by knowing how the mind acts. Such a classification will be of especial value in elocution, as we can thus readily discover and apply the laws of delivery drawn from the relation of the mind to the expression of its products. This classification we cannot now stop to present; but it is sufficient to indicate that some forms grow out of the mind as related to the True, some out of the mind as related to the Beautiful, and others out of the mind as related to the Good.

III. *Delivery.* — From the nature of the mind, also, we can immediately derive the laws of delivery. These laws have their origin in the mind, some in the intellect, some in the sensibilities, and some in the will. Our limits permit only an outline; a detailed discussion would fill a volume. We can merely premise that there are *three fundamental laws*, out of which grow many subordinate ones. The law of the intellect is that of *comprehension*. This is attained by Analysis, Inference, and Intuition.

The law of the sensibilities is that of *affection*, or *love*. This is attained by Comprehension, Appreciation, and Assimilation. In Affection, the intellect and sensibilities unite in a unity of effect that makes the sentiment to be uttered sink into the heart of the speaker by a process of absorption, or assimilation, and become, as it were, a portion of the soul itself.

The law of the will is that of *Utterance*. It is attained by Conception, Expression, and Impression. In utterance the will unites thought and feeling with itself in a subtle spiritual nexus, and the trinity go forth in expression and appear in the finished speech or oration, recreating the thought, feeling, and purpose of the speaker in the mind of the listener. The result of this trinity of spiritual forces working in voice and gesture is what we call Eloquence.

II. — THE VOCAL ELEMENT OF ELOCUTION.

The Vocal Element of Elocution is that which pertains to the voice. A philosophy of elocution seeks, first, a *complete analysis* of the vocal element; and second, the *laws* which show the adaptation of the forms and modulations of the voice to the expression of sentiment. It assumes, of course, that the voice is a faithful reflection of the soul. Every tone in natural expression is instinct with spiritual life, and all the variations in vocal expression are but a reflection of the varied shades of mental action. A philosophy of expression seeks to ascertain these natural relations of voice to mind, and to express them as principles to guide the speaker in vocal delivery. To indicate the relation of the philosophy of expression to the voice, a brief analysis will be made.

*Analysis of Vocal Elements.* — An analysis of the vocal element gives us three grand divisions, or departments. First, there is the voice itself, which is to be correctly produced and trained to purity, flexibility, and strength. This is the department of *Vocalization.* Second, the voice is to be moulded into articulate speech in the form of *words*, and these words are to be distinctly and correctly uttered. This is the department of *Pronunciation.* Third, these words are to be expressed in delivery with proper variations of tone as required by the sentiment. This is the department of *Modulation.* Thus the vocal element, like that of the mind, embraces three grand departments,—Vocalization, Pronunciation, and Modulation.

In a full treatment of the subject, each of these three grand divisions would be analyzed in detail, and the methods of culture and laws of application presented. Such analysis is here necessarily omitted; but in order to indicate the fundamental spirit of the philosophy we are presenting, a few of the laws will be briefly discussed.

*Law of Correspondence.*—The fundamental law of the vocal element is the *Law of Correspondence.* This means that all variations of the voice correspond with, or bear a close relation to, the actions of the mind. The mind speaks through the voice, and the voice reflects the mind. Each quality and modulation of tone must express some form of thought or feeling. In all natural or artistic expression, tone and voice must be linked together with the golden chain of correspondence. Out of this intrinsic relation of voice to mind come the laws of vocal expression. These laws thus have their source in the mind, and the fundamental principle of them all is that of *correspondence.*

Out of the general law of correspondence arise the special principles that apply to the various divisions of the vocal element. In

order that the nature and application of these principles may be clearly understood, attention is called to their operation in two departments of the vocal element, Force and Stress.

*The Law of Force.* — The general law of Force is that *the volume or strength of voice corresponds with the nature of the sentiment expressed.* The first special law is that of the Intellect. The law is that *the Intellect expresses itself in moderate force.* In the pure action of the Intellect, the soul moves with a tranquil and peaceful action like the gentle flow of the quiet river. There is no mental excitement, and thus no intensity of muscular movement that tends to produce or suggest strong tones of the voice. Moderate force is thus the symbol of an equable and unexcited condition of the soul, such as we have in pure intellectual action.

The second law is that of the Sensibilities. This law is that *the sensibilities express themselves in varied force according to the nature and intensity of the feeling expressed.* Gentle emotion requires gentleness of voice ; strong emotion requires a strong, loud voice for its appropriate expression. The mother's love that goes out in a lullaby song expresses itself in low and gentle tones ; the orator, with his soul swelling with patriotic fervor, pleads for liberty and law in a loud and excited voice.

The third law is that of the Will. The law is that *the will usually expresses itself in loud and commanding tones.* A strong purpose requires strength of voice for its expression. Sometimes the strength of will is indicated by a manifest suppression of force, in which there is a suggestion of strength by the indication of reserve power, the intensity of manner taking the place of loudness of tone.

These several principles, as applied to the productions of literature, may be formally stated as follows :

1. We determine the standard force by the general nature of the sentiment expressed.

2. If the sentiment is mainly or largely intellectual, the standard force is moderate.

3. If the sentiment is mainly or largely emotional, the standard force varies from soft to loud, according to the nature of the sentiment expressed.

4. If the sentiment is mainly or largely permeated by the will, the standard force is loud.

5. The force varies on individual words according to the variation of the ideas or sentiments expressed.

*Law of Stress.*—The general law of Stress is *that of correspondence of stress to the sentiment expressed.* The first special law is that of

the intellect, which is that *the intellect expresses itself in equal stress.* In the pure flow of thought, unaffected by the emotions, the voice naturally equalizes itself in the utterance of words. The second law is that of the sensibilities, which is that *the sensibilities require median stress.* In the utterance of emotion, the voice naturally swells out on words to give them the glow of beauty or the touch of tenderness. The third law is that of the will, which is that *the will, in intense action, expresses itself in extreme stress,* including both *radical* and vanishing, according to the nature of the sentiment expressed.

These laws indicate the great leading principles that are operative in stress. The distinctions are not of mathematical precision, since sentiment is seldom purely restricted to one or other of the three forms of mental activity. Thought is often touched with emotion; and emotion is often permeated by the will. In such cases, the stress will be modified by the union of sentiment and the relation of the elements so combined.

These laws of stress may be formally stated as follows:

1. We determine the stress by the nature of the sentiment expressed.

2. If the sentiment is purely or mainly intellectual, the prevailing stress is *equal.*

3. If the sentiment is purely or mainly emotional, the prevailing stress is *median.*

4. If the sentiment is largely permeated by the will, the stress is *extreme;* the *radical stress* being used in command or positive assertion, and the *vanishing stress* in determination, contempt, etc.

The principles for *compound* and *thorough* stress, which are but modifications of the three principle forms of stress, corresponding to the three forms of mental activity, are also determined by the nature of the mental activity, and thus by the nature of the sentiment expressed

Laws similar to the above can be attained in the same manner for Quality, Emphasis, Pitch, Tone, Pause, Slides, and Melody; but our limits preclude their presentation here. The laws relating to inflection are of special interest, and furnish a beautiful and impressive illustration of the great *Law of Correspondence.*

### III. — THE PHYSICAL ELEMENT IN ELOCUTION.

The Physical Element is that which pertains to the body and its members. It is that part of delivery which appeals to the eye and impresses the mind through the sense of vision. The mind speaks

through form and motion as well as through voice, and the human body is the medium of this visible speech.

*Analysis of Physical Element.* — A careful analysis of the forms of physical expression reaches a threefold classification of the physical element, as in the vocal and mental elements. First, the mind is impressed through the form and position of the body when not in motion, which gives us the element of *Posture.* Second, the mind is influenced by the motion of the body and its members, which gives us the element of *Gesture.* Third, the play of the features of the face speak often with more eloquence than the voice itself, and thus we have the element of *Facial Expression.* An analysis of the relation of the body to expression discovers certain principles of correspondence that result in the establishment of laws of striking beauty and significance. Our limits permit of only a brief glance at the subject.

*Law of Correspondence.* — The *Law of Correspondence* recognizes three divisions of the body corresponding to the triune classification of the mind. First, the Head corresponds to and is the symbol of the Intellect. This needs no acute analysis to discover, for it is a recognition of popular thought and speech; as it is often said of a man of superior intellect that he is "large-headed," or a "long-headed man." The head is universally recognized as the symbol of thought-power.

Second, the Trunk, or Torso, corresponds to the Sensibilities, and is the symbol of feeling. This is also a popular recognition, as in deep feeling we place the hand upon the heart, and in affection we clasp the loved one to the bosom. Our "bowels yearn with compassion," is an old expression, which recognizes the same fact. Deep emotions are accompanied by corresponding feelings in the torso, and thus positions and motions of the torso are symbols of various phases of feeling.

Third, the Limbs correspond to the Will and are the symbol of its action. The purposes of the will go out into the deeds of our hands, and the feet run to and fro to execute the volitions of the soul. We place things where we want them; we push aside the objects which stand in our way; we strike the person who opposes us; we stamp in determined energy, and kick a man out of our house who offends or insults us. Thus the will operates through the upper and lower limbs, and these actions are the results and symbols of the volitions of the human soul.

This analysis can be carried into the most minute detail. Not only is nearly every part of the body a symbol of some affection or

emotion of the mind, but there is also a language of posture and motion. Thus the Arms, by various positions and movements, speak a language of thought and feeling; and the same is true of the motions and attitudes of the Legs, Torso, and Head. Every feature of the face reflects the spiritual element shining through the countenance. The Eye, which in its natural condition seems an especial symbol of the emotional nature, may by variations indicate thought and volition. The Mouth, in its natural expression a symbol of the will, may indicate the presence or absence of thought, and also a varied play of emotions. The face is a perfect mirror in the reflection of the soul, and an entire "scale of emotions" may be given by the expert in facial expression.

If we examine the Hand, we shall find it to be an epitome of the entire spiritual being. Thus the *forefinger* is a symbol of thought; we use this finger in argument to impress our opinions. The *palm* of the hand is the symbol of the sensibilities; palm touches palm in the tender clasp of friendship and affection. The *thumb* is the symbol of the will; we enforce a strong purpose with the *fist*, and the fist is nothing without the thumb.

The *position* of the hands is also instinct with soul-power. They are *supine*, or *clasped*, in prayer; *descend prone* in blessing; are *clasped*, or *wrung*, in sorrow; are *outstretched*, with *palms turned away* from the face, in fear, abhorrence, or dismissal; *palms toward the face* in approval, acceptation, welcoming, and love; *elevated* in expressing grand and lofty sentiments; and *depressed* in expressing low and debased sentiments. The *motions* of the hands are also expressive of mental actions, but the subject is so well understood that no illustrations need be given. As Quintilian so happily remarks, the hand is "the common speech of all men."

It is gratifying to notice that here in the physical element the system of philosophy now presented meets that of Delsarte and accords with it, — at least, in its leading principles. Indeed, Delsarte has worked the field of gesture so thoroughly that little is left for any one to discover. The most that could be expected is to simplify and render more practical what he has sometimes stated in mystical and poetic phraseology. Such an object is, however, foreign to our present purpose; and, in fact, in this age and country, gesture for the ordinary reader and speaker is of less importance than oral expression.

A complete Philosophy of Elocution, as here conceived, includes at least four things: first, a logical outline of the elements of expression; second, a psychological basis for such a philosophy; third,

a full development of the mental element with a view of unfolding the æsthetic principles which underlie the art of expression; fourth, the derivation of the principles of artistic and effective delivery and their application to the vocal and physical elements. In the attempt to solve the problem thus presented, the following conclusions have been reached:

First, that Elocution embraces three elements, — the Mental Element, the Vocal Element, and the Physical Element.

Second, that a true philosophy of expression must be based upon the nature of the mind.

Third, that the mind possesses a trinity of powers which gives a triune development of the laws of expression.

Fourth, that the fundamental law of expression is that of correspondence.

Fifth, that out of this general law of correspondence arise all the special principles that govern both the vocal and physical elements of expression.

Sixth, that by this general law of correspondence the three elements are fused together into an artistic unity of expression, the result of which is a true, elegant, and effective delivery.

The basis of a complete analysis of the scheme of philosophy here suggested is presented in the following outline, which admits of a logical unfolding into the minutest details:

Philosophy of Elocution.
- 1. Mental Element.
  - 1. Intellect.
  - 2. Sensibilities.
  - 3. Will.
- 2. Vocal Element.
  - 1. Vocalization.
  - 2. Pronunciation.
  - 3. Modulation.
- 3. Physical Element.
  - 1. Posture.
  - 2. Gesture.
  - 3. Facial Expression.

In conclusion, we remark that a true philosophy of expression regards elocution as but a revelation of the inner spiritual nature, and assumes that the highest principles of the art have their origin in the human soul. The final object of the art of elocution is to enable man to reveal the thought and feeling and purpose of his own soul and reproduce them in the souls of others. When this object is fully attained, then is realized what Cicero has expressed in such felicitous phrase, that, "as the grace of man is the mind, so the beauty of mind is Eloquence."

# THE ORDER AND METHOD OF SCIENTIFIC STUDY IN THE HIGH SCHOOL.

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Society is not consciously responsible for the physical evolution that a human being goes through. But in laying stress on education, it grants its responsibility for a child's mental, moral, and feeling evolution. Hence history, in some form or other, becomes the foundation-subject in any course of study through which the child is to acquire the experience of the race. An experience of the physical development of the world is to come through the history that goes under the name of Physical Geography, Geology, and Astronomy. All other scientific subjects, — Chemistry, Physics, Botany, etc., are to have a place in a course of study because they illustrate and explain these

In talking of the child's acquiring the experience of the race, too much stress is often laid on the information that the child is to obtain from each study. The peculiar kind of thought-power that comes from the reflex action of each subject on the mind is not sufficiently emphasized. We have recently had a demonstration to the eye of the long-accepted notion that each subject has a certain influence upon the mind. The composite photographs of the physicists and naturalists of the Academy of Science show the face of the physicist to be more oval and of greater temporal breadth.

This paper is an inquiry into the nature of the mental discipline that each scientific subject gives, and an attempt to lay down an order and method of study that shall permit each subject to give the kind of discipline that it is most capable of giving.

"Facts are the eyes through which we see laws"; hence the suggestion that is sometimes made to teach Physical and Descriptive Geography is not philosophical. How can the mind draw conclusions until it has material to draw conclusions from? Moreover, pupils below the high school are too immature to grasp scientific relations. All scientific study below the high school is to teach children to notice what is put before their eyes. Science is a means, not an end, in lower schools. This throws Physical Geography into the high schools, and reason approves the instinct which places it early in the course. History and allied subjects cannot be understood

without it. Physical Geography also comes first when its place among other scientific subjects is considered. It is the history of the physical changes now taking place in the world. The importance of the information that is to be obtained makes it desirable to have it taken up early. This is especially true since its disciplinary value gives it the first place.

The scientific mode of thinking should be introduced by a familiar subject, so that the pupil's attention will be rather drawn to the mode of treatment than to the subject itself. The previous study of Descriptive Geography prevents Physical Geography from seeming an entirely new study, and leaves the mind free to look up its facts in view of their higher scientific relations.

A consideration of elementary psychological principles throws light on the best method to apply to Physical Geography. Since scientific reasoning is based upon facts, the pupil must first learn facts. Descriptive Geography gives general ideas of the world; so that when Physical Geography is taken up, the pupils recite what is laid down in the text-book very readily. Experience soon shows, however, that they really know nothing of the world about them. This is found by the difficulty they find in reasoning. The trouble is not in the reasoning faculty. The imagination is weak. It has not the material to divide and recombine so as to bring the facts of the book effectively before the reasoning faculty. Pupils must obtain this fundamental material through perception. They must study the topography of their own town, and where it fails to furnish the acquired material, carefully examine pictures.

Too much must not be expected of the pupils in the way of scientific reasoning in this early work. Their generalizations on the drainage of the Mississippi, after studying the creek in their own locality, will be, to say the least, surprising. In fact, they will but try to reason. The familiarity of the subject, and the grand scale upon which the phenomena occur, will enable them to do more in this direction in Physical Geography than they would in another scientific subject that might be placed here. That of itself would be sufficient reason to place the subject here.

As the explanation of phenomena of Physical Geography most noticed by pupils depend upon Physics, this branch should be taken up while Physical Geography is fresh in the mind. Again, Chemistry must be preceded by Physics; for many of its theories act partly or wholly upon Physics for proof. Physics, when rightly studied, demands less scientific attainment than Chemistry. Physical deductions rest often upon data obtained from experiments that may be

made in many cases by inexperienced hands. Again, data are used directly, and not reasoned upon as in deriving chemical theories.

It is said that Faraday remarked to some one about to do an experiment before him, "Hold! tell me what to look for." If Faraday found such difficulty in at once comprehending the force of a given experiment, certainly a pupil would never be able to understand physical experiments unaided. In fact, it will hardly be disputed that at this stage of a pupil's development, experimental work in Physics is entirely for purposes of illustration Such work is of two kinds. Experiments, simple as to manipulation and conclusion, should be performed at home. Slight modifications of book experiments make it possible to use household utensils for apparatus. Such work at home not only saves school-time, but convinces the pupils that a few illustrations of Physics may be found outside the high-school building. Experimental work at home, however, will not be of much value unless the pupil hands in a written account of what he did, and is questioned upon it. When anxious in regard to manipulation, the mind works so imperfectly in the direction of scientific reasoning that the pupil fails to get of himself much benefit from home-work.

The pupil gets his first conception of the nature of scientific law from his laboratory work in Physics; therefore its value cannot be over-estimated. As opposed to Chemistry, Physics is the study of force. The pupil should demonstrate every one of the laws of force laid down in his text-book. First, in imagination, when he decides how to put the question to nature; then in fact, by constructing apparatus and doing experiments that shall furnish data from which to deduce the law. Of course, this will consume a great deal of time, but if the pupil does but one set of experiments he will have learned much regarding the nature and method of physical investigation. Work of this character, too, teaches the pupil to use his mind, eye, and hand with precision. A work-shop in connection with the laboratory would be of great assistance. Indeed, if such an institution is logically advocated as part of a high school, must it not be in connection with, or as an aid to, some scientific study?

Very little difference of opinion exists as to what chemical facts are to be committed to memory, but teachers disagree as to chemical method. One class of teachers talk about limited space, expense, and a thousand other easily surmounted difficulties, the moment experimental work is advocated. Another class are so enthusiastic over laboratory work that they seem to confound physical with mental vision. They act as if they supposed that if pupils were

looking at some chemical experiment with their eyes, they were really learning chemistry. If such persons should put a few questions to pupils on the experiments they have just performed, they will find that the pupil's attention has been absorbed in the doing. Perhaps it would be safe to affirm that generally when pupils do experiments laid down in a text-book, they really get little out of the work, even if questioned upon it. Their answers are merely from the book, or a saying over of what the teacher has said. They have really seen nothing in the experiment of themselves. Chemistry should be so taught that the pupils should become in some degree independent observers. First, pupils must be made to realize that the properties of bodies are ascertained by using the senses. They must be kept on one substance until each pupil really sees its properties.

The following way of beginning chemistry has proved rather satisfactory: A short talk is given on matter and force. A substance is shown to the class, and the fact that its physical properties may be learned by using the five senses, and its chemical, through using one or more of the forces, — solution, light, heat, electricity, — is explained. The pupils are then sent to the laboratory to examine and report upon a substance (ammonium chloride, $NH_4Cl$.) that they find on their desks in a powdered state. At first they will divide their time between looking at the teacher and at the substance. If a pupil asks what he is to do with the substance, he is told that if he can remember what was said in the lecture he may be able to decide. On hearing this, several will examine the substance with a view to finding out its physical properties. Others will try to dissolve it, and still others to heat. After all have tried heating, lime is given out, and a reheating suggested. All will observe the odor of ammonia. For home-study that day, ammonium chloride in the form of crystals is given out. Everybody will discover that ammonia is present. Ammonium carbonate is next given. When the pupil has found the ammonia, an acid is given him to apply, and thus he is introduced to a re-agent. Three or four weeks of work of this kind may seem an enormous waste of time, but pupils who have taken such a course take up the experiments laid down in the book with much greater benefit. The work suggested is not intended as an introduction to qualitative analysis, but to elementary chemistry as laid down in most books intended for high-school use. We are ahead of England in what we set before beginners in chemistry. If pupils are mechanical in this work, it is not because we have set them too soon to qualitative analysis, but because we have not given them enough time in the beginning to get the full force of an experiment.

Those persons in sympathy with the new botany set pupils to studying

Scales should be introduced into high schools for the pupil's use, and books laying down experiments from which the fundamental laws of chemistry may be derived should be adopted. High-school laboratory experiments, as now carried on, are so inaccurate that no positive proof of the laws upon which chemistry is based can be given. At present, pupils are obliged to take the facts upon which chemical laws are based upon faith. Consequently, they confuse facts and theories. They talk, for example, about atoms much more fluently than of things that are known to exist.

Physiology, Zoölogy, and Botany introduce an entirely new thing to the pupil's attention, — matter under the influence of life. Since lack of time makes it impossible to study more than one of these subjects thoroughly, the question arises as to which shall be selected. Certainly not Human Physiology. As a practical study it belongs to the grades. The scientific study of man belongs to the high school, doubtless, but neither propriety nor convenience give the scientific study of man as an animal a place. Nor is this to be regretted. Man is not particularly impressive as an animal. Even his eyes, which have been so much praised, are excelled. The eagle can see farther, and the fly sees more minute objects. It is declared that the optician who offered so defective an optical instrument for sale would be severely criticised. The great power of man's mind and soul is that which has enabled him to get along with them fairly comfortably. When the scientific study of man's mind is referred to, that part of the course relating to man as a thinking being is under consideration, and not that part that is being discussed in this paper. The recent formation of a psychical society in this country makes us feel that a psychical laboratory is not so ridiculous after all. Why may not thought-transference be studied by the future high-school pupil? In passing, we venture to predict that before any great use of psychology will be made in teaching, it will be learned in a more practical way, — namely, by experiment.

I should select Botany, rather than Zoölogy, for the study of life. Plants are simpler, easier to obtain, and cleaner to handle. Pupils love plants, but are not sufficiently akin to be pained by the necessary dissections. Still, on moral grounds, dissections should be avoided as far as possible. There was sound philosophy in that old English law that forbade a judge to allow a butcher on the jury in the case of a murder trial.

Darwin is the founder of what is termed "The New Botany." The names of his books give an idea of the nature of his botanical study.

living plants. Fortunately, the likeness among plants allows pupils to spend sufficient time on one plant to do something in the way of discovery.

Physical Geography is the modern history of the earth; Geology its ancient history. Physical Geography introduces the sciences, Physics, Chemistry, Botany, which explain it; Geology binds them together. Passing thus from the whole to the part, and from the part back again to the whole, is helpful. Geology gives the pupil an opportunity to re-examine troublesome points that the recent study of Chemistry and Physics will doubtless clear up. The experimental work in Geology and Physical Geography is much alike, except that the pupil is thrown more upon himself.

Science has taken a new place in the world, of late. We thought, a year ago, that only Russia would go wild over the terrible power that science had put into men's hands. Already have we learned that even the United States is not to escape. Every branch of study has that within it which speaks for morality, and this must now be more emphasized than ever before. Astronomy should come last in the course, for it, more than any other subject, teaches reverence. Did not Prof. Young say, before the American Association for the Advancement of Science, in speaking of Astronomy, that "No other scientific facts or conception are more effective in producing sober, thoughtful, and ennobling estimates of man's just place in nature, both in his puny insignificance regarded as a physical object, and his towering spirit, in some sense corresponding to the universe itself, and so akin to the divine"?

Interpretation of common phenomena show a pupil's theoretical scientific knowledge. Laboratory work shows his practical knowledge. The fact that a pupil is able to remember certain facts stated in his text-book does not prove that he knows any science. Doubts have at last been raised in the minds of examiners of candidates for scientific honors in various English universities on account of the great amount of scientific information shown by the applicants. The question is now being discussed as to whether there is not some more reliable way of ascertaining a man's scientific attainments than through the examination paper. Is it too soon to ask in the high school whether the "literary test" for promotion in science should not be mainly discarded?

# *GENERAL OUTLINES OF EDUCATION IN JAPAN.*

BY S. TEGIMA,
*Japanese Commissioner to International Health Exhibit, London,* 1884.

## I. — GEOGRAPHY.

Japan is situated nearly between 24° (island of Hateruma in Okinawa Ken) and 51° (island of Shimushi in Nemuro Ken) north latitude, and between 123° (island of Yonakuni in Okinawa Ken) and 153° 30′ (island of Shimushi in Nemuro Ken) longitude east of Greenwich. It is surrounded on every side by water: it is washed on the south-east by the Pacific Ocean; on the northwest it is separated from China, Corea, and the Russian possession of Manchuria, by the sea of Japan; on the north from Saghalien, by the sea of Yezo; and on the north-east it extends through the Kurile islands to the Russian territory of Kamtchatka. Its length from north to south is 15,000 ri, and its breadth is over 60 ri in the widest part, and 30 ri in the narrowest part.

## II. — TERRITORIAL ORGANIZATION.

The country is divided into nine circuits; viz., Kinai, Tôkai, Tôzan, Hokuroku, San-in, Sanyô, Nankai, Saikai, and Hokkai. The nine circuits are sub-divided into eighty-four provinces. For the purpose of the administration of all these provinces, there are established the 3 Fu of Tôkiô, Kiôto, and Osaka, and 44 Ken. Under Fu and Ken, there are Ku and Gun; which are sub-divided into wards and villages for the purpose of local administration. Tôkiô is the seat of government, the Imperial Palace being also situated here. According to the census of the 15th year of Meiji, the population of the country is 37,041,368, of which 5,750,946 are school population.

## III. — POLITICAL ORGANIZATION.

All the administrative affairs of the country are under the control of the Emperor. Under Daijôkwan, or Privy Council, there are ten departments; viz., the Departments of Foreign Affairs, Interior, Finance, War, Marine, Education, Agriculture and Commerce, Public Works, Justice, and the Imperial Household, and also the Senate, and the Supreme Court of Judicature. These all form part of the administration of the country. There is a governor in each Fu and

Ken, who exercises jurisdiction in accordance with the laws and regulations passed by the government, and in conformity with the directions of the various Ministers. In every Gun or Ku, the subdivision of Fu and Ken, there is a Gunchô, or Kuchô, who controls that Gun or Ku under the superintendence of the governor, and in conformity with his directions. In a ward or village there is a Kochô, who, under the supervision of Gunchô, or Kuchô, takes charge of the administrative affairs in his jurisdiction.

In regard to education, there are school committees specially organized in wards or villages to conduct the various matters concerning the school attendance of children, the establishment and maintenance of schools, etc., under the supervision of the governor. They are nominated in each school district (details concerning the division of wards or villages into school districts will be found in the following pages) by the people of that district, and then the governor selects a certain number of those thus nominated. The tenure of office of the school committees is not less than four years, and fixed according to circumstances. Their numbers, salaries, etc., are determined by the ward or village assembly, with the approval of the governor. In case any committee-man is incapable of discharging his duty after he has been appointed, the governor causes another nomination to be made.

Persons qualified to serve as members of School Committees, or to take part in the nomination of the same, must be males, upward of twenty years of age, possessing either lands or buildings, and having both legal and actual residence within their respective school districts. The Kochô takes part in the business of school committees in his own school districts.

When several wards or villages unite together and establish such schools as professional schools, middle schools, etc., independent of the limit of the school districts in which elementary schools are organized, they nominate special school committees within the limit of the school district thus formed. The regulations as to the mode of nomination, appointment, functions, etc., are the same as those adopted in the case of school committees of school districts.

### IV. — DEPARTMENT OF EDUCATION.

The Department of Education is one of the ten Departments, and the Minister of Education has control over all affairs connected with the education of the country, and with respect to these affairs he superintends the governors of Fu and Ken. There are senior and junior vice-ministers who assist him in the discharge of his duties; secretaries who manage the special business intrusted to them under

the orders of the minister, and subordinate officers who transact the various business assigned to them respectively.

The Minister of Education prepares drafts in regard to the establishment and abolition of such laws and regulations as are connected with education and submits them to the Emperor for approval. He also signs such laws and regulations, and is responsible for them. When any proceeding of a governor in relation to education is deemed improper, he has the right of nullifying it.

In order to carry on the business of the Department, the following Bureaus are organized within the Department; viz., Bureau of Special School Affairs (to conduct business concerning higher and special education), Bureau of General School Affairs (to conduct business concerning general education), Bureau of Compilation (to conduct the business of writing and compiling books necessary to education), Bureau of Finance (to conduct financial business, constructions, and repairs), Bureau of General Business (to conduct business connected with official regulations for the officers of the several bureaus of the Department, and the schools, etc., under its control, and various business not undertaken by the other bureaus), Bureau of Report (to conduct business concerning the reports, statistics, etc., of education), Office of Private Secretaries (belonging to the private office of the Minister and Vice-Ministers, having charge of business concerning appointment, dismissal, promotion, etc., of officers under the control of the Minister), Documentary Examiners' Office (to examine the drafts of laws and regulations), Office of Prize Affairs (to conduct business connected with the pensions of teachers and rewards concerning education), Institute of Music (to conduct business concerning inquiries as to singing and the improvement of music), Office of Report of the Government Gazette (to conduct the business of collecting and arranging in proper order the laws, regulations, writings, reports, etc., necessary to education), which are to be published in *Kuwanpô* (the Government Gazette). The chief of each of these bureaus is a secretary, and in some cases an assistant-chief is also appointed.

The Ministers and Vice-Ministers visit, from time to time, the schools of every Fu and Ken, or send officers under them to every place, to inspect the actual condition of education. Those officers afterwards present to the Minister reports on the result of their inspection. The governors are bound to present every year a detailed report of education within their jurisdictions; and the schools under the control of the Department are also obliged to present a report on the result of instruction. The Minister then arranges all these reports in proper order, and, after making his own remarks and adding

statistics, presents them to the Emperor as the Annual Reports of the Department of Education. This report is afterwards made public, to show the condition of local education.

The Minister of Education has organized an Academy, in order to inquire into matters concerning education and to discuss subjects connected with this science and art. The members of the Academy are at present twenty-one in all, and are all good scholars of high reputation. The seven original members were chosen by the Minister himself, and the rest have, from time to time, been elected by the vote of the members. The president and vice-president are chosen by the members, their tenure of office being one year. As a rule, they meet once a month in the Department of Education.

The directors, librarians, curators, teachers, etc., of the schools, libraries, museums, etc., under the control of the Department of Education are appointed and dismissed in different ways, according to their rank: those of the class of Chokunin are appointed and dismissed by the Emperor himself; those of the class of Sônin, by the Prime Minister, after the matter has been submitted to the Emperor by the Minister of Education; and those of the class of Hannin, by the Minister himself. The following table shows the classes and annual salaries, expressed in Yen:

| *Official Titles.* | *Official ranks.* | *Amount of Annual Salary.* | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Yen. | Yen. | Yen. | Yen. | Yen. | Yen. | Yen. | Yen. |
| Rector. . . . | Chokunin. | 4,800 | 4,200 | 3,600 | 3,000 | . . | . . | . . | . . |
| Deans of Faculties, Directors, Librarian, and Curator. | Sônin. | 3,000 | 2,400 | 2,100 | 1,800 | 1,500 | 1,200 | 960 | . . |
| Professors. . . . | Chokunin | 4,800 | 4,200 | 3 600 | 3,000 | . . | . . | . . | . . |
| | Sônin. | 3,600 | 3,000 | 2,400 | 2,100 | 1,800 | 1,500 | . . | . . |
| Assist. Professors. | Sônin. | 1,800 | 1,500 | 1,200 | 960 | . . | . . | . . | . . |
| | Hannin. | 1,200 | 960 | 840 | 720 | 600 | . . | . . | . . |
| Instructors. . . . | Sônin. | 3,000 | 2,400 | 2,100 | 1,800 | 1,500 | 1,200 | 960 | . . |
| | Hannin. | 1,200 | 960 | 840 | 720 | 600 | . . | . . | . . |
| Assist. Instructors. | Hannin. | 600 | 540 | 480 | 420 | 360 | 300 | 240 | . . |
| Teachers. . . . | Hannin. | 540 | 480 | 420 | 360 | 300 | 240 | 180 | 144 |
| Clerks. . . . . | Hannin. | The clerks are divided into ten classes from the first to the tenth, and the official ranks and salary are the same as those of the clerks of the government Departments. | | | | | | | |

The amount of salary, from the professors down to teachers, mentioned in the abôve table, may be more or less reduced in case the number of hours of instruction be less than that regularly prescribed.

### V. — HISTORICAL OUTLINES OF EDUCATION.

Owing to the lack of books and writings on the subject, we do not know much about the ancient condition of education in the country; but since the time of Ojin Tennô, who reigned toward 930 of the imperial era (A.D. 270), the successive emperors paid attention to education, encouraged it, and made it one of the principal government departments. In the reign of the Emperor Mommu (A.D. 673–686) the system of instruction was reformed, a university was established at Kiôto, and schools were also organized in various provinces. In the time of the Emperor Kanmu (A.D. 782–805), education was completely organized and was in a very flourishing condition. During the periods of Hogen (A.D. 1156) and Heichi (A.D. 1159), political power was transferred to the military class, and education then declined; but after Tokugawa Iyeyasu established the military government at Yeddo (the present Tôkiô) and engaged learned men and organized government schools, it began to flourish once more. From this time we see schools of Han organized within the dominions of the Feudal Lords, and also within their residences at the three capitals (Yeddo, Kiôto, Osaka). There were also village, as well as private, schools in wards and villages. No rules being then established by the government, each of those schools followed its own course of instruction, but elementary education was given in every part of the country.

In the first year of Meiji the political power having been transferred to the Emperor, the Gakushiu-in (a school for nobles) was established in Kiôto. This was the first step toward the improvement of education after the political reform. In the second year of Meiji there was established in Tôkiô the university which had the control of educational matters over the whole country. In the fourth year of Meiji the university was replaced by the Department of Education, which takes charge of the educational system of the country. In the following year there was promulgated the code of education by which the school districts, and the mode of instruction in the university, middle schools, and elementary schools, were determined. The school age of children was also fixed at from six to thirteen years of age. At this period a great many schools were established in various parts of the country, and great improvements were made in the mode of instruction. In January of the eighth year

of Meiji the school age of children was altered, and fixed at from six to fourteen years of age. In September of the twelfth year of Meiji the old code of education was abolished, a new code of education was passed, and many improvements were made in the system of education. In December of the thirteenth year of Meiji the code of education was revised, and the sphere of business connected with education was considerably enlarged. This code is the one now in force.

### VI. — KINDERGARTENS.

Kindergartens are designed to train children of both sexes under school age with a view of assisting home education and of laying the foundation of the school education,—moral, physical, and intellectual development being the chief aim of the training. According to the investigations made in the fifteenth year of Meiji, there are seven kindergartens, including government, public, and private establishments. One of them is established in the Tôkiô Female Normal School, and instruction is given by the students of that school. There are also independent kindergartens which are managed by the conductors.

The course of instruction generally comprises assembly, conversations on morals, conversations on various objects, block-laying, paper-plaiting, embroidery, drawing, counting, reading, writing, singing, games, etc., and the length of the course of study is three years. The regulations, etc., of kindergartens are determined according to local conditions, and consequently are not uniform.

### VII. — ELEMENTARY SCHOOLS.

Elementary schools are those in which general education is given to children and at which attendance is compulsory. According to the computation of the fifteenth year of Meiji, the total number of elementary schools in the country, including both government, public, and private establishments, is 29,081.

An elementary school-district may consist of a single ward or village, or of several wards or villages combined, which shall possess adequate resources for establishing and supporting elementary schools. The number of elementary schools to be organized in one school district is different according to its extent and the convenience of the pupils attending them. Thus, in some school districts, there is only one elementary school, and in others there are several elementary schools. Again, in some there is one elementary

school, with several branch schools. In others, there are several elementary schools and several branch schools. In all cases the number is determined by the governor, after consideration of the local conditions.

Although elementary schools ought to be established in every ward or village, yet when from the local situation it is inconvenient for the pupils to attend them, or when the pecuniary condition of a ward or village does not admit of the establishment of a school, the pupils may be taught by the system of itinerary instruction.

The course of study in elementary schools is determined by the governor in accordance with the "Standard Outline of the Course of Study of Elementary Schools" issued by the Minister of Education, modified according to local conditions, and is enforced after the approval of the Minister of Education. It is consequently not uniform.

The elementary school course is divided into three grades; viz., lower, intermediate, and higher grades. The lower grade course comprises the elements of morals, reading, writing, arithmetic; also singing and gymnastics. The intermediate grade course comprises in addition to the continuation of the elements of morals, reading, writing, arithmetic, and singing and gymnastics, the following subjects: the elements of geography, history, drawing, natural history, physics; and especially for the benefit of female students, sewing is provided. The higher grade course comprises, in addition to the continuation of the elements of morals, reading, writing, arithmetic, geography, drawing, natural history, and singing and gymnastics, the following subjects: the elements of chemistry, geometry, physiology, and political economy; while especially for the benefit of female students, domestic economy is substituted for political economy. The length of the course of study is three years in each of the lower and intermediate grades, and two years in the higher grade; thus the whole length of the three courses extends over eight years.

Although the courses of elementary schools are such as mentioned above, yet some subjects may be added or ommitted in accordance with local conditions, the difference of sex, etc.; and, in some cases, the elements of agriculture, industry, commerce, etc., may be added. But in no cases are morals, reading, writing, or arithmetic to be ommitted.

Teachers of elementary schools must be upwards of eighteen years of age, and must possess either the certificates of normal schools, or teachers' licenses, or certificates for instruction in a cer-

tain subject, given by the governor of Fu or Ken. The certificate of normal schools is valid for seven years from the time of granting it, and available throughout the country to obtain the position of a teacher in elementary schools; while the teachers' licenses given by the governor are only valid for a period not exceeding five years, and are only available within the jurisdiction in which they are given.

The teachers' license is given by the governor after examination made as to the knowledge of the candidates, in accordance with the "Directions for Granting Teachers' Licenses" issued by the Minister of Education, and, according to their capacity, the license enables them to teach one of the three courses of elementary schools. In any locality where no teacher can be found qualified for any one of those three courses, then those qualified for any one or several subjects may be substituted. Scholars eminent in learning who can teach morals well, or those who have a good knowledge of agriculture, industry, commerce, etc., may obtain teachers' licenses for the particular subject without examination.

The rank of teachers of elementary schools is determined by the government, as shown in the following table. They are appointed and dismissed by the governor at the request of the committees of the respective school districts; the amount of salary is also determined by the governor, subject to the approval of the Minister of Education. Therefore, the amount of salary is not uniform in all Fu and Ken, but it is not more than 40 yen, nor less than 5 yen, per month.

| | *Quasi-official Rank.* |
|---|---|
| Director, | From the 11th to the 13th class. |
| First Teachers, | 11th class. |
| Second " | 12th " |
| Third " | 13th " |
| Fourth " | 14th " |
| Fifth " | 15th " |
| Sixth " | 16th " |
| Seventh " | 17th " |

All children of school age, whether male or female, must attend elementary schools and receive instruction there, except children who are ill; children whose relations are ill, and who have no other persons to attend to them; children who have physical disabilities; children whose families are poor (this last is limited to such cases only when there are no schools established for the accommodation of such children); and children who are receiving the instruction of the elementary course at home. But those who have some reasons, such as studying

some other subjects, or who are engaged in occupations, after completing the three years' course of elementary instruction, may be excused specially from attendance at elementary schools.

The business connected with compulsory education is conducted by the school committees under the supervision of the Gunchô or Kuchô. The school committees are bound at the end of every year to examine children of school age in their respective school districts, and if they find any child who does not attend school without good cause, they must compel his parent or guardian to send him to school, or examine into the validity of the excuse, and decide the matter, subject to the approval of the Gunchô or Kuchô.

### VIII. — MIDDLE SCHOOLS

Middle schools are organized according to the local conditions of each Fu and Ken, and in conformity with the General Regulations of Middle schools issued by the Minister of Education. Their object is to give higher instruction in the common branches of study so as to prepare pupils for liberal pursuits or for the more advanced schools. According to the statistical calculations of the fifteenth year of Meiji, the number of middle schools was 172, including both public and private institutions. The course of instruction is determined in accordance with the "Standard Outline of the Course of Study of Middle Schools," issued by the Minister of Education. The course of study is divided into two grades; viz., lower grade and higher grade. The course of the lower grade comprises morals, Japanese and Chinese literature, English language, arithmetic, algebra, geometry, geography, history, physiology, zoölogy, botany, physics, chemistry, political economy, book-keeping, writing, drawing, singing, and gymnastics. The course of the higher grade comprises, in addition to the continuation of the lower grade course in morals, Japanese and Chinese literature, English language, book-keeping, drawing, singing, and gymnastics, the following subjects: trigonometry, mineralogy, and Japanese law; in this grade physics and chemistry are also taught.

According to local conditions, a general literary course and a general scientific course may be established in addition to, or instead of, the higher grade course; and also such special branches of study as agriculture, industry, commerce, etc., may be taught. The English language may be omitted, or the German or French may be substituted for English. The length of the course of study is four years in the lower grade and two years in the higher grade, the whole

course extending over six years. However, the length of the course of study may be lengthened or shortened by any period not exceeding one year.

In order to provide a model for middle schools, the Minister of Education established the Middle School at Osaka. The course of study is divided into two grades; viz., lower and higher grades.

The course of the lower grade comprises morals, Japanese and Chinese literature, English language, arithmetic, algebra, geometry, geography, history, physiology, zoölogy, botany, physics, chemistry, political economy, book-keeping, writing, drawing, singing, and gymnastics. The course of the higher grade comprises, in addition to the continuation of morals, Japanese and Chinese literature, English language, book-keeping, drawing, singing, and gymnastics, the following subjects; viz., trigonometry, mineralogy, and Japanese law; physics and chemistry are also taught. The length of the course of study is four years in the lower grade and two years in the higher grade, the whole course extending over six years.

### IX. — UNIVERSITY.

There is only one university, called Tôkiô Daigaku, which is under the control of the Department of Education. Its object is to give instruction in the special branches of study. It consists of the four Departments of Law, Science, Medicine, and Literature.

In the Department of Law, a course of study is provided to teach students principally Japanese law, English and French law being added. There is also a special course of instruction which is provided to give students a more simple course of study. The length of this course is three years; but special instruction will be given for one year to those who desire to learn law more fully, after they have completed the three years' course.

In the Department of Science, a course of instruction is provided in mathematics, physics, chemistry, biology, astronomy, engineering, geology, mining, and metallurgy.

In the Department of Medicine, a course of instruction is provided in medicine and pharmacy, and a special course of instruction is also provided. The object of the course in medicine is to train students for the degree of Igakushi, and the length of the course of study is five years; but the object of the special course in medicine is to train students as practical physicians, and the length of the course of study is four years. The length of the course of study in pharmacy is three years.

In the Department of Literature, a course of instruction is pro-

vided in philosophy, political economy, political science, and Japanese and Chinese literature.

The length of the course of study is four years in each Department, except in that of Medicine.

Attached to the Department of Literature, there is Koteu Kôshiu Ka, which is divided into two courses; viz., the Japanese classic course and the Chinese classic course. In the Japanese classic course, students are taught ancient Japanese laws, ancient and and modern history, historical changes of institutions, changes of languages, etc.; and in the Chinese classic course they are taught ancient Chinese law, Chinese classics, history, doctrines of several scholars, Chinese literature, etc. The length of the course of study is three years in the Japanese classic course and four years in the Chinese classic course

Attached to the University there is Yobimon (Preparatory Department) of the Tôkiô Daigaku, which consists of two schools; viz., the principal school, which is situated within the Departments of Law, Science, and Literature, and the branch school, which is situated within the Department of Medicine. The principal school is intended to prepare students on such subjects as are necessary for entering one of the three Departments of Law, Science, and Literature, and the branch school is intended to prepare students on such subjects as are necessary for entering the Department of Medicine. The length of the course of study is three years in the principal school, and four years in the branch school.

In the Department of Science there are astronomical and meteorological observatories, which are both situated at Motofujichô in Hongô, Tôkiô, at 35° 42′ north latitude and 139° 46′ longitude east of Greenwich. There are also botanical gardens and museums. In the botanical gardens, several thousand species of plants are grown and cultivated; in the museums, originals, specimens, and models, relating to physics, chemistry, and natural history, are arranged.

In the Department of Medicine there are two hospitals, to which sick people are admitted, and in certain cases they are taken care of gratuitously. These are provided to enable the students to gain practical knowledge of their subject. Besides, there are Rikugun Daigakko (Military Academy), under the control of the War Department, and Kobu Daigakkô (Engineering College), under the control of the Department of Public works. The former is intended to train those persons who desire to become officers of infantry, cavalry, artillery, or engineering in such a way as to make them fit to discharge the duty of staff officers in future. The latter is intended to train

engineers who will be employed by the Department of Public Works. A course of study is provided in civil engineering, mechanical engineering, ship-building, telegraphy, house-building, practical chemistry, mining, and metallurgy. The length of each course of study is six years, of which the first two years (called the preparatory course, in which students are prepared for entering one of the special courses) is confined to instruction in the English language, geography, elementary mathematics, elementary mechanics, elementary physics, chemistry, and drawing (geometrical and mechanical), etc.; and the last two years are spent in the practical application of the knowledge already acquired.

[To be Continued.]

## OCCUPATIONS AND PROFESSIONS FOR COLLEGE-BRED WOMEN.

BY JANE M. BANCROFT, PH.D., EVANSTON, ILL.

The conditions of life among educated women have changed greatly during the past twenty years. At the beginning of this period women could scarcely find a college that would admit them as students, and but a limited number had received the discipline and culture equivalent to that afforded by a course of study in our best institutions for instruction. To-day, the majority of such institutions are opened to women, and some of the older and more conservative colleges that have not yet thrown wide the great portals of their stately edifices have provided a convenient side door by which the sisterhood can quietly and modestly enter and receive such crumbs of instruction as the brothers can spare from their well-furnished table.

In one way or another, opportunities have generously multiplied, and a new phase of the woman question and higher education is now before us. These added and enlarged opportunities have produced the natural result of a whole generation of younger women who have been trained to accurate observation, habits of patient study, and power of generalization,—in a word, who are fitted with an education woman never before have had. Facing this generation of educated young girls is the wide-awake, alert, nineteenth-century saying, "What will she do with it?"

Some months since, one of the English reviews, considering the subject of university education for girls, gloomily maintained that college-bred women were over-educated women, and that there was no place for them in our social economy. The review proceeded to say that such women would shrink from the cares and responsibilities of married life, and, if amply provided with means, not needing to earn a livelihood, would find themselves left apart in all the arrangements of practical life, and would lead a cheerless, lonely existence, enjoying no happiness, and being of no use to the world about them. Now it is certain that the class of educated women exists, and that its number is increasing, and will greatly increase in the years to come, but the conclusions that the reviewer reached are by no means so certain. As long as human nature is what it is, there will con-

stantly be marrying and giving in marriage, and our educated daughters of the present generation will be the educated mothers of the next generation. No interruption of the great motives which act upon men and women is to take place because women have added to their stores of knowledge, have developed better judgment, and intellectually have equipped themselves with the best armor that the arsenal of modern thought affords. On the other hand, it is unscientific to say that the new circumstances that have arisen do not constitute a new environment. The woman of to day finds herself in conditions as diverse from those of the woman of fifty years ago as does the middle-aged man of 1884 from the mature man of 1834. Take a man who is accustomed to fast express trains, ocean steamers, the telegraph, the telephone, the daily morning papers, the thousand conveniences of modern times, — how could he return to the stage-coaches, the sailing vessels, slow mails, the hindrances of time and space that prevailed half a century since? what thoughts would he have in common with the man of that time? what modes of business activity that would not be radically different? While the great motives that effect humanity underlie all changes and keep in a state of equipoise the main relations of life, the outward surroundings have changed, and we do not need to be profound students of science to understand that to these new conditions we must adjust ourselves.

The Association of Collegiate Alumnæ is a society that originated in Boston in 1882 with the object of uniting for practical and educational work the young women graduates of a certain number of colleges. These colleges, thirteen in number, are as follows: Oberlin College, Cornell University, Vassar College, Michigan University, Wisconsin University, Boston University, Smith College, Wellesley College, Massachusetts Institute of Technology, Wesleyan University, Syracuse University, Kansas University, and Northwestern University.

Of these colleges alone, there were at that time over thirteen hundred graduates; but this number by no means includes all the women who have received collegiate instruction, as there are many co-educational institutions not included in the above list. Gen. Eaton announces, as a deduction from the facts of the last census, that, at present, there are 18,061 young women who are pursuing collegiate courses of study.

As we view the new motive power presented by the increasing number of educated young women, the natural question is, "What can she do in the economy of society?" and many of the young women concerned responsively ask, "What can I do?"

Most of those who have gone forth into the active life of the world have answered the questions for themselves. The great majority have been quietly fulfilling the destiny of their sex. They are happy wives, are useful and devoted mothers, and are making bright and beautiful homes. The best results of the higher education for women are found in homes presided over by intellectual women.

The influence of such women is practically unlimited. One phase of it is seen in the great interest in self-culture manifested by ladies in every city, town, and small hamlet, as shown by the literature classes, art lectures, and historical studies that are so marked a social feature of the last ten years. Mothers, and even grandmothers, have entered eagerly upon the strife to keep themselves in advance of their children, and the entire tone of society has been benefited in consequence.

Let us keep our inquiry to the occupations and professions for unmarried college-bred women. These naturally divide into two classes, — the wealthy, or those having personal independence; and the bread-winners, those who have to face life and make a way for themselves. For the woman enjoying wealth or a competence, there are delightful and congenial employments for unoccupied hours. As a philanthropist, she has manifold opportunities. Immunity from daily care and toil leaves her the rare pleasure of being "at leisure from herself," free to foster and forward every good cause whose aim is to benefit the world.

Think of the women who are to-day interested in the great philanthropic movements of the time! How our hearts rise up and do them reverence as we recognize their unselfish devotion to the cause of humanity; but when to their energy and enthusiasm are added the vigor and discipline of the younger women, who have had broader opportunities to obtain knowledge, who have studied the latest phases of social and political science, who have been trained with the same thoroughness as have their brothers in the consideration of problems of society, of state, and of government, the great living reforms will be immeasurably advanced. Lecky gives, as one of the reasons in defence of the English aristocracy, that there are many questions, affecting the complex whole we term civilization, that demand intense absorbing thought and patient, laborious toil; and as such services are not rewarded by the state or society, there must be a leisure class that can perform them. For the educated woman having independence and time, I claim a similar function.

In science, the work that can be accomplished is as yet unmeasured. The director of Harvard College Observatory has asked for the co-

operation of women interested in astronomy, and some who desire to put to use their astronomical training have already entered into communication with him.

Chemistry is an alluring field of work, especially in lives that are claimed to be pre-eminently womanly. The late president of the Institute of Technology, in Boston, had this in thought when he laid out a section of the Department of Industrial Chemistry for household analysis, — the testing of water, the adulteration of food, with lectures upon the chemistry of food and upon respiration and nutrition.

Then, too, in a wide variety of ways, educated women of wealth and position can give a stimulus and needed inspiration to the society about them. The most effective service can be done in promoting a right sentiment among women themselves, so that the feeling of kindliness, kinship, sorority, shall encompass every woman who is trying to do something for her sex or to better her own condition.

Our very best thought and most patient study are due the educated woman who has to earn her livelihood. Herbert Spencer says, in his essay upon the "Status of Women and Children," "How unmarried women who require to earn their living are to do so by the exercise of their intellectual faculties is one of the great problems of the day." The Western Association of Collegiate Alumnæ, recognizing this truth, at its session of January, 1884, decided to take as the topic of study for the year, "The Occupations and Professions Suitable for Educated Women," and to work faithfully in collecting facts bearing upon all lines of women's work. The members of this society believed that they could render no greater kindness to a young woman, graduating from college and choosing a vocation than to give her the fullest information concerning the different lines of useful labor the world has to offer her.

The profession of teaching is overcrowded. The number of situations that are open to exceptionally educated women are few, and usually do not afford a compensation equal to that given a man in the same situation; certainly not a compensation at all commensurate to the time, toil, and means that have been expended in fitting for the position.

There are but three lines of educational work that young women can be encouraged to enter upon with a confident hope of a just recognition and a fair return. Women scientists thoroughly trained in biology, chemistry, or physics, competent to take full charge of a biological, chemical, or physical laboratory, and to lecture upon

advanced lines of studies in these departments, are rare, and the demand for them cannot be met. There is also a limited demand for women who are experienced teachers, to serve as principals of high schools and superintendents of education in smaller towns and villages. We catch a glimpse of a fairer day in reading the resolution that is under present consideration by the Commissioners of Education of Rochester, N. Y.: "The salary of our female principals shall be the same as that of male principals in all cases where the responsibilities are similar." In Chicago, the era of equal renumeration for equal responsibilities has already arrived. The sole discrimination in the salary of school principals is based not upon sex, but upon length of service.

Since the passage of the See educational bill in France, there has been a veritable revival of learning, so far as women are concerned. A large number of schools of secondary instruction have been opened, but most valuable of all is an institution at Sévres, corresponding to the celebrated Normal School for men at Paris. Its aim is to fit women to become directors and professors of girls' colleges.

It would be a valuable departure for our normal schools to add to their other excellent departments one of superintendence, where women, as well as men, could be especially trained with a view to becoming principals, directors, and superintendents of schools. In a majority of cases young women are employed as assistant teachers because their services can be cheaply obtained; yet often the work given them, and the care imposed upon them, are entirely disproportionate to the labor and responsibility assumed by the superintendent who has the credit of any good result and the major portion of the money return.

How much is the time to be desired when so many avenues of useful and honorable work shall be opened to women that teaching will no longer be regarded as the one available resource of the cultivated but impecunious lady. Then we can hope that assistant teachers will have less care, better remuneration, and a reasonable prospect of attaining a position of importance when duly qualified by acquirement and experience.

There is another line of teaching in which the demand is, or shortly will be, largely in excess of the supply, and this is in the department of pedagogics. Pedagogy has a recognized place in the curriculum of German universities, while the other countries of Europe are giving this science earnest thought. In America it is slowly rising into consideration, but in a few years there will be a

well defined demand for instructors and professors of pedagogics. During the past, year two lady teachers have foreseen the demand, have resigned their positions and gone to Germany to prepare themselves to fill such situations.

In medicine, well-qualified women, possessing tact and judgment, have the brightest prospects for a successful career. This is one of the few professions, in which the work and the payment are not determined by sex. Equal ability and equal service obtain equal remuneration.

Numerous inquiries that have been made to elicit facts upon which to base this paper have brought but one answer, and this a favorable one. An eminent physician of Syracuse, whose experience and practice are great, and his generosity and sympathy toward women still greater, says that a well-qualified woman physician can more readily obtain a lucrative practice than a young man of the same acquirements and qualifications. There are 2,432 woman physicians in the United States, — a capable and efficient force of workers, who are doing the world good service, and who have solved the problem of social independence. The success of women as physicians in our own land is no longer a question. Let us glance for a moment at the situation of medical women in Europe.

At England we need not pause. There, for years, women have studied and practised medicine. From Germany there are no cheering news. German women who would secure an advanced education must pursue their studies and take their degrees at foreign universities; and I have received positive intelligence of but two German lady physicians. In Denmark, ladies study medicine at the University of Copenhagen, the only one which exists in that country.

In Sweden, the University and medical schools are also thrown open to them, although as yet there are no women physicians. An eminent Swedish lady explains the reason in the following words: "It is more difficult to obtain a degree in medicine in Sweden than in the United States, or elsewhere in Europe. A thorough course of study is demanded, which generally embraces a period of from eight to ten years, with three examinations. None of our female students have as yet passed the final examinations and obtained the degree of M. D."

In Belgium, opportunities are limited, and there is only one woman physician in the country. In Switzerland, every year since 1871 there have been women studying medicine at the University of Geneva, and all of its departments have been opened since 1872. In Italy, women enter the Italian universities, take degrees both in lit-

erature and in medicine, and there are women physicians in the large cities. In Spain, women can attend lectures in the University, but instead of degrees, which are refused them, they are granted certificates; consequently women medical students, although having completed a course of study, cannot practice, as legally this is one of the privileges attached to a degree.

The history of the medical education of women in France has been a progressive one ever since 1866, when degrees were first conferred upon them. In Russia, there are about 250 ladies, who are practising physicians; and in St. Petersburg alone, there are fifty-two, although it is not yet ten years since medicine was opened to women.

No more facts need to be marshalled to prove that medical education for women is practically a settled question in Europe and in America. The exclusion of qualified medical women from medical societies and from the International Medical Congress is to be deplored; but here again all educated women may find "a vocation" in industriously creating and furthering such a public sentiment as shall make impossible a permanent exclusion.

Closely connected with the study and practice of medicine is the practice of pharmacy. Prof. Lochmann of Norway, when advocating the opening to women of the Pharmacy School connected with the University, used these words: "Pharmacy is a field for which women seem peculiarly fitted. I have no doubt that they would conscientiously and carefully prepare and dispense medicines, and experience has shown that there are many advantages in employing them in this department. They are indeed already found there, and the general opinion is that they do their work satisfactorily. It would therefore be in the interest of society, as well as that of women themselves to give an official stamp to their employment in this profession."

Our civil service presents a wide and promising field for conscientious, large-minded women, who, as lovers of their country, interested in its honor and integrity, can render good service. A letter to the Commissioner of Education respecting opportunities for women, under the present civil service system, elicited the following information:

"Nowhere on the part of the Commission or its subordinates is there any favor or disadvantage allowed by reason of sex. Only under free, open, competitive examinations have the worthiest women the opportunities, and the Government the protection, which arise from allowing character and capacity to win the precedence and the places their due. The need for political influence or for importunate solicitation, especially disagreeable to women, for securing appointments in the classified service, exists no longer.

Rule 16, clause 3, controls the certification of women for appointment so completely that the Commission has no discretion on the subject. The law in force before the passage of the Civil Service act, gave the heads of departments authority to decide when women are required or can be accepted. Both the Civil Service act and the rules leave that authority unimpaired."

The practice of law has some exceptional instances of women who have been successful and have achieved reputation in the profession, but the instances are exceptional, not usual. Chicago has two of the most notable examples,—a mother and a daughter, who as editor and writer on legal subjects have attained distinction. They are modestly and effectively doing good service and are valuable members of the legal profession. Such decisions as that lately given in Philadelphia will materially aid in opening the way to competent women who desire to enter the legal profession. Mrs. Kilgore made three several applications to practise law in the law courts of the city. Much discussion was evolved, and each application met with a refusal until the fourth, which was successful. To show how thoroughly public sentiment is changing on the matter of professions for women, two opinions that were given on this occasion may be quoted. Justice Pierce said: "There are inherent reasons why women should be admitted to practise law, growing out of the necessities of her fellow-women." Judge Thayer, delivering the opinion of the court, said: "It would not be the part of a wise judicial decision to turn back the wheels of time, to convince history that it is all wrong, and to say at this time of day that woman shall not be permitted to pursue the vocation that suits her taste, and for which her studies have qualified her."

Architecture is a profession well fitted for women. Their love of ordered beauty, and appreciation of adaptation in detail, would seem to render this an especially attractive vocation to them. As long as when the Strasburg Cathedral was building, the wise Irwin von Steinbach, the master-builder, was aided in his plans by his wife, and a sculptured stone within its walls represents them as consulting together. Certainly a woman who spends so much of her life in a house ought to be able to plan a comfortable and attractive home, with suitable arrangement of halls, stair-cases, kitchens, and closets, and with wise economy of space. A graduate of Michigan University, who held the first rank in her class in mathematics and art studies, became deeply interested in architecture. Through her brother, a Representative in Congress, she obtained a position as architect in the government service in Washington, and having been

remarkably successful in her work, has obtained leave of absence to make special advanced study in Paris, where she is at present.

The industrial branches of the fine arts, more particularly designing and engraving, furnish resources for art-loving women. Miss Agnes Garrett, the youngest of that remarkable trio of sisters of whom Dr. Garrett-Anderson and Mrs. Millicent Garrett-Fawcett are the other two, is engaged in the business of decorative art in London. Her cousin and partner, Miss Rhoda Garrett, died a few years since. Both had been carefully trained in the business of designing wall-paper and furniture.

Journalism is a field that is just entered upon. Inquiry brings to light the knowledge that most of the great city dailies do not like to employ women as reporters, save in compiling fashion-notes and in attendance upon weddings, fashionable entertainments, and women's meetings; but a creditable number are engaged in writing editorials, while there are some four or five whose names recur to all as most successful editors.

The list of occupations opened to women is by no means exhausted. The census report of 1880 names 265 different employments, that are pursued in the United States, and of these women are found in 222. If "he is a philanthropist who makes two blades of grass grow where one grew before," surely he who will point out the way to put to service the unused woman force in the world will be far more a philanthropist. It is from no craving for notoriety, no sickly longing for a sphere, that we should ascribe this great and prevailing desire among women to find proper expression for their activity. Over fifty years ago, Charlotte Brontë wrote what is equally true to-day: "It is in vain to say human beings ought to be satisfied with tranquility. They must have action, and they will make it if they cannot have it. Women need exercise for their faculties, and a field for their efforts, as much as their brothers do. They suffer from too rigid a restraint, too absolute a stagnation, precisely as men would suffer; and it is thoughtless to condemn them or laugh at them, if they seek to do more or learn more than custom has pronounced necessary for their sex."

The final test of this question of occupations for educated women is met squarely in the case of a woman who must earn her own livelihood, and the good sense of the majority of people inclines them to remove every unnecessary obstacle in her path. It was this feeling more than any other that brought about the admission of women to examinations for honors at Oxford University. The largest vote ever cast by the graduates of Oxford was called out on this issue,

and the decisive majority of 143 settled the question without appeal. Many of these applying for examinations intended to earn their living by teaching, but the good positions were taken by those who had the honor certificates, while the Oxford certificates of proficiency were valueless. The point raised was not an abstract right to certain privileges, but a practical right to earn one's bread and butter, and the Englishman's liking for fair play outstripped his conservatism.

In the same way many a similar question is to be settled. Meanwhile, the world will go on much as usual, while the intellectual woman, married or unmarried, doing what she can the best she is able, will quietly prove by the logic of events that the sympathetic heart, aided by the enlightened mind, will best purify and beautify the home and social life. It is to the re-adjustment of vocations that we must look for the new and wider life for women.

## *A CRITICISM OF THE CLASSICAL CONTROVERSY.*

BY PROF. JAMES KING NEWTON, OBERLIN COLLEGE, OHIO.

It would seem almost enough to disprove the beneficial effects of all culture to observe, what no one is able not to see, that there is, as yet, no department of study which trains its votaries to distinguish between an epithet and an argument; between a controversy and a discussion. We are not surprised that, in the quarrels of children and of politicians, epithets are used rather than arguments; for they have a quick and stinging stroke which often silences when it does not convince. But that scholars should throw away the weapons, — the facts and the arguments which education has put into their hands, — and take up the epithets and assertions of children and politicians, is astounding. It would seem that learning should keep both parties of disputants on "The Old *versus* the New Education" from allowing the discussion to degenerate into a controversy. In a controversy, epithets and prejudices and "present convictions" are bandied back and forth, and the result is never the attainment of truth, but always "the darkening of counsel by words without knowledge." In a discussion, men are always more likely to settle the question rightly, the more freely they use facts and arguments and logical deductions.

But surprisingly and constantly, in this discussion, even as in most others, the real points at issue are overlooked, and what is collateral and incidental merely is treated as the fundamental and essential. The things which ought to be proved or disproved are asserted and denied without proof. For instance, Gov. Chamberlain is scandalized that Dr. Todd should make the statement that "college education is losing, not gaining ground," without adducing any proof in support of it. But while Governor Chamberlain admits that this would be "a very startling and significant fact if it were true," he goes on to say that he himself has compiled no statistics and made no formal tests or comparisons, but gives his "present conviction that the opposite is the fact."

There is nothing so untrustworthy, on any side of any controversy, as "my own present conviction." When the disputants in this discussion come down to a basis of fact, we may still be far from the ultimate deductions of truth, and we shall, at least, be faced toward

them and approaching them. I have at my hand a few facts which, so far as they are facts and not merely convictions, should be worth something in this discussion. I have gathered them from *The Congressional Directory*, edited by the clerks of the printing records at Washington, and from *The American Almanac*, edited by A. R. Spofford, Librarian of Congress.

1. Only 101 of the 409 members of our last Congress are college graduates, — less than twenty-five per cent. Ten years ago there were thirty-eight per cent.

2. The increase in number of students during the ten years between 1870 and 1880, in twenty of our oldest leading colleges, including all those which are most prosperous to-day, was *less than three and one-half per cent.* The population of the United States increased during the same ten years *twenty-three per cent.*

3. During the same ten years, the number of students in all universities and colleges and schools above an academy increased only seventeen and one-half per cent., though the increase in number of colleges during the same ten years was twenty-four per cent., while the increase in number of instructors in all colleges and scientific schools was thirty-two per cent.

All this means that the increase in number of colleges has kept pace with the increase in population; that the increase in number of instructors has far exceeded that of population; but that the increase in number of students in all colleges and scientific schools, when compared with the increase of population, is as seventeen and one half to twenty-three; while the increase in number of *classical students*, as nearly as we can get at it from present reports, — for we must deduct something for the scientific students who are counted in with the classical in these statistics, — when compared with the increase in population, *is considerably less than three to twenty-three!*

These must certainly be counted as significant facts; and if we may accept the estimate of President Barnard or President White,— I cannot at this moment recall which,—that seventy per cent. of each college class is lost to literary pursuits, we may venture to call them both "significant and startling."

Again, Gov. Chamberlain says: "It seems to me to be one of the most trivial queries, whether our professors and students can read Greek and Latin at sight, or not. Those languages are dead . . . . and I confess to a feeling of a little impatience when I constantly hear . . . . the capacity to read them at sight put forward as a test of a teacher's or student's success in their study."

But however trivial it may seem to Gov. Chamberlain, it does not

seem a trivial test to students in our law and divinity schools, where the inability to read Greek and Latin and German at sight means inability to do the work laid upon them. And certainly it does not seem trivial to the teachers in those schools. I have never heard anywhere the ability to read German at sight called a trivial test as to one's knowledge of that language. Indeed, the *in*ability to read German at sight would be taken, everywhere, as conclusive evidence that the teacher's or student's knowledge of the language was imperfect. If he did not know the meaning of the words and the force of the connectives, his knowledge would be in the dictionary and grammar, and not in his head. Even so, — not more, not less, — if a teacher of Greek or of Latin does not know, at sight, the meaning of words on a page and the force of connectives, his knowledge is in his dictionary and grammar, and not in his head. The question whether the language be living or dead has not the slightest relevancy to the matter. If I know the meaning and power of Greek words so that I can read a page at sight, I know Greek. If I must "thumb" my dictionary and grammar before I can tell their meaning and force, my dictionary and grammar know Greek, not I *I* only know where to go to ask my dictionary and grammar. And that in this later day is to be a scholar!

This idea has been carried so far that a man is even esteemed a scholar *in proportion* as his knowledge is in his dictionary and not in his head; *in proportion* as he is quicker in "thumbing" than in thinking; *in proportion* as it is manual labor, and not mental. Gov. Chamberlain would have us believe that those men who can read the ancient classics at sight are so afraid of being considered "superficial" and "lacking in thorough grammatical training" that they depreciate this accomplishment as "a very idle and inconclusive test" of scholarship. So far has the English grammar of the Greek language over-topped the Greek! Not so did Dr. Johnson and all the grand old scholars know Greek and Latin. But when they studied, "the aorist was made for man, and not man for the aorist."

And we are coming back to those fine old standards of scholarship, for in the recently-published changes at Harvard we notice that reading at sight is the test for entrance examinations in all languages; and in *The New Englander* for March, 1885, in an article by Prof. Tracy Peck of Yale on "The Classics and the Yale Curriculum," we read as follows: "An important feature of the entrance examination is the reading at sight of Greek and Latin Due attention to the requirement, from the beginning to the end of the preparatory work, must tend very greatly to strengthen and make more practical the

student's hold upon the language; to emancipate him from slavery to his lexicon; to encourage his use of honorable methods of study; to make him look upon the language as means as well as ends, and to quicken and energize his mental processes in a very valuable way."

On day during the summer vacation a young man appeared in my study and begged me to give him twenty-five lessons in German. I demurred. I was in no mood to teach. I told him that vacation study did not amount to much. But he was incorrigible. He had had three terms some time before, and now he had come on from the far West for twenty-five lessons more, and had only four weeks in which to take them. I told him, finally, that if he would do everything I asked him to do, I would begin, and stop when he flagged. He reviewed the grammar work so that he could apply it instantly,—and pugnaciously, if I chose to try him with a controversy when he was suspiciously glib. He translated into smooth, idiomatic English; he retranslated into smooth, idiomatic German, changing the mood and tense; he practised on the portions assigned him till he could read them with perfect accuracy, fluency, and expression; and he made himself able to use any verb in the lesson, in any mood and tense, in conversation.

After twelve years of experience in teaching in this way how to think and read, in several different languages, I can say most emphatically that the test of reading any language, living or dead, at sight,—*of understanding without translating*,—is the crucial test; the true test as to whether one knows a language, or only something about that language. The scholar who thinks he is reading Greek when he picks up a sentence, word by word, and puts it over into the English case and meaning, and comprehends it as a whole only when he views it in its transferred form, is not studying Greek, is not reading Homer; he is reading his English equivalent for Homer, — and oh, ye gods of Homer! Not that it is impossible to translate it; not that the English is inadequate to it; but that it takes six years of a Bryant in his prime to do it.

It was more than seventy years ago that Sydney Smith said there was a great confusion of language in regard to the word "ancient." We speak of "the ancients" as if they were older and more experienced men than we, whereas the age and experience are entirely on our side. They were the clever children, and *we* are the white-bearded and silver-haired ancients, who have treasured up, and are prepared to profit by, all the experience which human life has gained in the long life of the race.

## *UNITY IN STUDIES.*

BY S. T. DUTTON, SUPT. OF SCHOOLS, NEW HAVEN, CONN.

In presenting a few thoughts on this subject, I shall recognize the fact that in education much is known and little is new. I shall point with some degree of complacency to the results of thoughtful experience as seen in our best schools in the way of intelligent arrangement, economical grouping, and systematic method; and shall then consider the subjective unity which is the outcome of high and definite aims.

In the first stage of school-life, the child is simply acquiring the *means* of getting an education. Reading, writing, spelling, number, and perhaps drawing, are these means. The highest unity has been reached when the teacher uses writing to teach reading, and reading to teach writing;—when spelling is learned by means of both and, taught alone, either by sound or by letter, is made to help the teaching of both. The form of the word to be written, read, and spelled, is one and the same form, and the writing of the letters which compose it aid in gaining a more complete knowledge of it.

Number, while introducing a new element, may still be taught in close connection with the other steps. The familiar things which are placed in the hands of the pupil as subject-matter for reading may also be used in developing number.

Drawing is an important aid in reading, as regards the work of both teacher and pupil. It is also used to good advantage in number. Thus, with an elementary knowledge of the natural world acquired before the child enters school as a basis of teaching, we see how the highest possible unity may be attained in the primary stage. By no other arrangement could such harmony be secured. But even with this unity of plan, the teacher may be either economical or wasteful. She may be clear in her method, or may be drifting aimlessly in the fog of ignorance. She may be active and earnest, or she may be lazy. With either ignorance or laziness, our vision of perfect unity fades quickly away. There can be no real unity in the studies of this stage of perception and activity, unless the teacher can read that most difficult of books, the living child, and can work in perfect harmony with that greatest of teachers, Nature.

Says Professor Hall in the last issue of the *North American Review*, "The best of us have far more to learn from the children than we

can ever hope to teach them." It is one of the most delightful experiences of a school inspector to find here and there those who walk in the liberty of this new educational doctrine. We see in their school-rooms less of method and more of life. The means of education are there acquired without distaste or weariness; and the skillful teacher makes sure that during this important stage no bad habits are formed.

The next stage in school life, which, for convenience, we will say extends to the high school, is essentially the period of development. To awaken the dormant faculties and furnish them the most healthful exercise is here our work. The child is to be directed in the use of those means which he has already acquired, to a study of arithmetic, geography, and history, which are the three gateways leading to a knowledge of computation, of earth, and of man. There is opportunity here for much that may be called training, and it certainly is not to be slighted. These studies open also a new world of fact and information, and it is difficult for the child, or the ordinary parent, to see in the lesson to be learned anything but facts. But the intelligent teacher knows that the *power* which is generated in the learning of that lesson is vastly more important than the facts.

The strength which the skill of man calls forth from the subtle forces of nature is less wonderful than the unfolding of mental energy under the hand of the artistic teacher. The evils which attend all machine teaching are notorious. A well-managed shop, or store, or farm, is more developing to a boy than a machine school. Why? Because it calls forth power from within, while, in the school, the power most conspicuous is that of limitation and repression applied from without. The rigid memorizing of facts permits no harmony of development.

It may also be said that the greatest unity possible in the elementary stage is achieved by holding pretty closely to the three R's. To make arithmetic the *summum bonum* is a mistake. *Reading* is the great highway to all acquisition and research. What observation is to the child, reading is to the man. I mean, of course, that silent process by which the mind gleans from the printed page. Let the cultivation of power in rapid and intelligent reading be zealously sought until the pupil is able to tell with accuracy what he has read. The habit of close attention, quickness in grasping facts, skill in summarizing them, and accuracy of statement, are incidental results of the reading lesson, if well taught. Such power in reading combines all the elements of mental strength and alertness. As by a process of transfusion, it enables the youth who has it to study suc-

cessfully. Accompanied by practice in reproduction, it affords unlimited facilities for language-teaching. The silent reading-test, followed by written reproduction, in which fullness and accuracy of statement and propriety in language are sought, calls for the greatest unity of thinking power. When we carry such exercises into the realm of history and geography, we focus the most desirable elements of common school training in a single exercise, and give culture in language at the same time that information is being gathered. History and geography are properly complements of each other, and should be read together in every grade; and I venture to affirm that text-books in these studies are good for nothing but for vigorous and thoughtful reading. The physical structure and topography of a country may be made the basis of teaching. Then follows a course of well-selected reading on the stirring events, or epochs, which have marked the history of that country, as the achievements of its patriots and warriors, its social and industrial progress and the causes therefor.

The boy who leaves school at the age of ten or twelve should take with him the means of self-education. With this thought as our standard, must we not agree that the highest unity in the elementary stage is to be gained by making intelligent reading the central aim? With thorough drill in arithmetic for the purpose of training the mind to systematic thinking, with broad and extensive reading in geography and history for information and culture, and with incidental conversations upon the elements of natural science to train the observing powers and to acquaint the pupil with nature's laws, we have a curriculum which addresses all the faculties of the mind.

The work of each year in the grammar school should be a unit. It should secure to the pupils the habit of doing everything well. In going on to higher steps, we should make sure that thus far there has been thorough work The true teacher, knowing that a certain pupil has, by reason of hard necessity, but a little time to remain in school, will seek especially for unity and completeness in his training. We must remember that there is no unity in the results of our teaching, except that which is seen in the individual pupil. This is true at all stages. It is particularly seen to be so when the boy goes out, as a product of the school system, to enter the service of the practical business man. The corporate excellence of the school he has left, however well accredited it may be, is of little service to him now. He can please his employer and win from him a favorable comment for himself and for the school system, only as he is self-reliant, and can show practical power in the performance of his duties.

In the higher education, whether it be that of the high school or of the college, experience has found it necessary to establish a "central axis of discipline studies and a complement of accessory branches yielding information and insight." Leave out the mathematical and classical training and you have an invertebrate structure. Science and literature open the world of nature and man far wider and more richly to the scholar whose mind has trodden the thorny road of severe discipline. The methods of teaching in these departments have been the greatest bar to unity. The humanistic grind of the middle ages has been perpetuated in many high schools and colleges. And the fierce crusade that is now being waged against Latin and Greek, although wrong in principle, is yet a hopeful indication that the need of reform is deeply felt. Both in the elementary and higher stages there is great economy in grouping those studies which bear a natural relationship to each other. Thus, with arithmetic are to be grouped the elements of practical book-keeping and the conventional forms of business paper and correspondence.

As we have already shown, geography naturally falls into line with history, the one being a study of the earth, its structure and surface, and the other a record of men and what they have wrought. The broader the view which geography opens, the more of mineralogy, botany, astronomy, and other sciences will be included; while a broad treatment of history will introduce the student to sociology, civil government, and ethnology. As the work in the higher departments becomes specialized, new relations spring up. The advanced student in botany is compelled to deal with questions in physiology, biology, and chemistry. The worker in political science must inquire into the various matters which are interwoven in the commercial and industrial activities of modern life. So it is in dealing with all special subjects.

What an opportunity is here afforded for the exercise of economy and skill, both to the teacher and the learner. There is little chance for elective work in the grammar school, but in the high school the student should be able to choose between an abridged course as a preparation for business, a full English and scientific course as a training for teaching or a profession, and a classical and English course as preparatory for college. The student having decided upon one of these, should be able to go forward without let or hindrance. The best teaching talent in the school should always be at the service of those whose education must be abridged. Especial pains should be taken to introduce them to the library and to teach them how to read and what to read. In other words they should have the best

advantages which the public can afford to furnish. In the past, while the classical course has prepared boys for college, the so-called business course has not always fitted boys to be efficient in business.

We have now briefly touched upon some considerations whereby unity of arrangement and method are secured. I wish now to consider the threefold nature of man, the needs of that nature, and the intelligent purpose which should lead the educator to meet those needs by making *character* the fundamental aim in all his work. The mind is a unit. Its so-called faculties are only different forms of activity. The same will is back of all. The mind is mysteriously wedded to the body, and in the exercise of all its functions is dependent upon it. For the highest success in life, it is necessary that the moral element should become the leading principle of conduct, and that it should overshadow and give form and comeliness to all intellectual and physical training.

The latest and truest educational dictum is that a trained intellect devoid of moral stamina is a dangerous thing in a community. It may be no worse than ignorance, but it is often vastly more powerful. Unity in education recognizes this startling fact and unites all forces in an attempt to secure moral earnestness. Physical culture is given not merely that the body may be strong, but because such strength is favorable to soundness of mind and pureness of heart. More attention is paid to the formation of right habits than to formal ethical teaching, because of the truth in that old proverb which says that "character is naught but a bundle of habits."

One of the most successful schools on this continent to-day is the Normal and Industrial Institute at Hampton, Virginia. In that institution the gospel of Christian grace and the gospel of hard work are fused in the soul of every student. The wild Indian from Dakota and the easy-going negro from Georgia, under this system, so vigorously and devoutly carried out, become self-respecting, self-controlled, and self-supporting citizens, and go back among their people to become influential leaders and teachers. Were the training there given purely intellectual it would, we may venture to affirm, fail of reaching these desirable results. With people so handicapped by hereditary influence, the will cannot be made dominant, nor the moral character be established, unless the muscles are persistently employed at manual labor, and the moral sense is kept alive to the cardinal principles which lie at the base of citizenship.

Is this a plea for an industrial education, do you ask? Only so far as the higher claims of unity demand it. Industry and morality are in close alliance, and public education will, gradually, I am sure,

recognize this fact. It is a pity that so many see nothing in the industrial idea but a pile of lumber and a lot of carpenter's tools. These are well enough, and I am glad to say that in New Haven we have one hundred boys in our grammar schools illustrating the benefits of manual training. But we are looking, not at the boxes, tables, easels, etc., which they construct, but at the boys themselves, to see what reflex influence such training produces.

And the industrial idea has a still wider application; it should be vitalized in all teaching to insure a highly unified curriculum. The boy with his tools slowly and patiently works toward his ideal, and the finished product is the result. There is nothing of force or cram in the process. It never occurs to him that what he is doing would be the veriest drudgery to the carpenter. He rejoices because his will is set free, just as he does when he puts on skates and glides over the ice in the crisp wintry air.

I have said enough to indicate where we must look for the highest unity. System, method, economy, all have their place in the school, but are impotent unless the instructor can invoke the will of his pupil, and from his own fullness of life beget life in him. The writer is no expounder of novel and captivating methods, but would urge that school work be allowed to crystallize about the highest of aims; viz., to establish the motive power of the individual pupil. Such unity needs little discipline, little marking, little cramming. It permits no idleness, weariness, or listless dreaming over the lesson. It repudiates superficial culture and lays the foundation-stone of every lesson in the bed-rock of character.

We have a right as teachers to take satisfaction in the progress made of late in methods, and the consequent improvement in popular sentiment toward the public schools. We have a right to rejoice in our high calling, which affords unlimited opportunity for investigation and study, and which makes us influential in building human character. In seeking to make a good school, we should seek with all our energies to make good men and good women. These two aims are closely related to the two forms of unity of which I have spoken. To secure the first must be our constant daily thought. To reach the latter we must invoke the aid of all that is highest and best in us. Our largest sympathy and interest must be centered upon those under our care. We must inspire them to work from the best and purest motives; our example before them must be one of upright and honorable conduct; and our aspirations for them must reach those best things that are within the grasp of human effort.

## *MARY LYON.*

BY ELIZABETH PORTER GOULD.

As civilization advances, bringing its wealth of power for the larger development of man, the pioneer becomes more and more an object of appreciative interest. And when such an one has opened the way to a fuller knowledge of the invisible things of the spirit, the interest becomes supreme.

Such a pioneer for our American women was Mary Lyon, who was born in Buckland, Mass., in 1797. Her name is even now known the world over, and her life, has as been well said, is an "added verse to the eleventh chapter of Hebrews." She was by birthright a woman of faith, receiving from a godly ancestry its heavenly inheritance, the "substance of things hoped for." Hence her life-work was unique, the result of a nature which did not need the discipline of doubt in order to grow, nor feel the temptation to waste time in idle speculations. Like the high-born in all realms, in the realms of faith she began life where the few end and the many fail to reach. This faith shines all the brighter when found in conjunction with the magnificent physical energy and superior mental power with which she was also endowed.

When a very young child she showed her mental activity by a little incident which is told of her. Her mother gave her something to do to keep her little fingers busy. She began to work with all the ardor of her nature, when she spied an hour-glass upon a shelf before her. She immediately threw down her work and climbed up into a chair to examine it. She was poring over it when her mother came into the room and asked her what she was doing. "Oh!" said the child, all excited, "I know I have found a way to *make more time!*"

From the first of her going to school she was noted as being an uncommon scholar. A teacher with whom she studied Alexander's *Grammar*, said that in four days she learned all that scholars were accustomed to commit, and repeated it correctly at one recitation. She was equally good in arithmetic. Another teacher said, "I should like to see what she would make if she could go to college." When she was older and went to the Sanderson Academy in Ashfield, which was four or five miles from her old homestead in Buckland, she was so quick to learn that a teacher once said, "She is all

intellect." She became so distinguished in her studies that while there the trustees gave her her tuition in honor of her scholarship. Her power of mental concentration was great. She could study fifteen hours out of the twenty-four, and not be wearied. Nothing could quench her ardor. New studies were added to keep her in the limits of the class. Finally, Adam's *Latin Grammar* was given her, with the direction that while committing it to memory, she should learn only the regular lessons of the class. This, the teacher thought, would employ her for some time. But within three days she had learned and recited all that students then learned when first taking up the book.

Her own opinion of this feat is seen when years afterward a friend asked her about it. "Oh!" she replied, "it was at one of those schools where they do nothing but study and recite; not at all so good for the character as Mr. Emerson's at Byfield, where I went later."

When she first proposed going to this school at Byfield,—the Rev. Joseph Emerson's,—she met with much opposition from the people in her vicinity, who thought she already knew a great deal. They were sure she had learning enough to teach their daughters; and, as she "never would be a minister, why should she go off to Byfield to school?" But her mother, who was always in sympathy with her, said, "Go, my child"; and she went. In later years she told her pupils that they could hardly understand what an undertaking that was. "Why, it took us three long days to go by carriage from Ashfield to Byfield!"

Mr. Emerson ever remembered with pleasure his pupil, and, in his last years, when reviewing his school-life, he said that, for "mental power he considered Mary Lyon superior to any other pupil he had ever had in his seminary." Miss Lyon ever considered her connection with this school as an important era in her life; for it was here that the spiritual germ which her mental activity had hidden, — not crushed, — was so quickened as to cause her sorrow that her unbounded hunger for knowledge had so absorbed her that "she had left no room for a Savior's love." "Oh, my leanness! my leanness!" was her cry in the presence of such love. And from that time her mind and heart grew more in harmony. In other words, her intellect became sanctified by divine love. She began to exemplify in herself the possibility of what she once said to her pupils, "The same amount of talent will rise higher with benevolence."

On her return to Ashfield she became assistant in the Sanderson Academy. When a friend had proposed her for this position, the

principal of the school, thought that he, like his predecessors, needed a man to aid him. "Try her," said her friend, "and see if she is not sufficient." He did try her, and was satisfied.

She had had a first experience some time before as a teacher at Shelburne Falls, where she had received for pay seventy-five cents a week and her board.

When she was in Byfield she found a warm friend in Miss Grant, one of the teachers there, who must have seen her latent power as a teacher; for, two years later, when principal of the Adams Female Academy at Londonderry (now Derry) she offered her a position in her school. This Mary gladly accepted; but before entering upon her duties there she went to Amherst to attend lectures in chemistry and natural history, in order that she might the better teach by experiments.

As the academy at Derry was poorly located for a winter school, it was open only during the warmer summer months,—thirty weeks. So Miss Lyon determined to appease her deep longing for the education of those in her own neighborhood by opening a winter school for them. Thus she taught summers for Miss Grant and winters in her own neighborhood for six years, going in the meanwhile to Troy to continue her studies in chemistry with a learned professor there.

During this time Miss Grant had moved her school to Ipswich, Mass., where many of her old pupils followed her. As the academy was now in session a school-year, Miss Lyon was urged to give it her whole attention. She hesitated to give up her winter school, which so many girls had enjoyed at the rate of a shilling a week; but as the Ipswich school opened a larger field for her powers of usefulness, she finally decided to devote all her time to that.

While teaching in Ipswich, she often took Miss Grant's place for her to go away to rest. At one time it was for a year and a half, when a correspondence passed between them which particularly reveals Miss Lyon as the true woman growing ready for her greater work to come.

In these letters she tells of her life of peace in the midst of arduous cares and responsibilities. In one she says, "Goodness and mercy follow me continually. My daily business connected with school is particularly sweet and delightful. There is an unusual evenness and uniformity in my feelings, — freedom from excitement. My cup is full, and running over. I often say to myself, 'How sweet are all my labors! how sweet is life!'"

Ah! is not this a life worth living? In looking for the secret of such peace and joy, I find, in another letter, another expression of

her soul, "Whatever sphere or situation God may appoint, it is enough if I can see the path of duty. This lesson of depending on God day by day for daily bread is one I desire to learn. I have often found myself attempting to preserve the manna till morning, but I have never succeeded." Surely this is the life of faith where prayer is the soul's breath.

She shows her remarkable love for teaching when, on taking a class on *Watts on the Mind*, she writes, "I rejoice more and more that I have undertaken it;" and again, "I have looked forward to studying and teaching the Epistles of Peter as a kind of feast. But the commencement is more precious than I anticipated. Oh! that I might have a heart to receive into my inmost soul the glorious truths which emanate from many 'a radiant point.' . . . . I must let the Bible take the lead. Then I care not how closely intellectual philosophy follows after."

When in one letter she suggests the philosophical question, "On the distinction between ideas of sensation and reflection, or those of internal and external origin," she reveals a capacity for mental questioning. But hers was not the life of a metaphysical questioning; it was the life of faith. She felt that to such a life metaphysics was a hindrance, not a help. During these years she was blessed with great physical health; so much so that in one letter she says, "Oh! that my soul were in health as my body is! . . . I feel so well every morning when I arise that I do emphatically enjoy health."

This wonderful physical vigor is realized more when we remember that when she was getting her education she helped support herself by spinning and weaving. The blue cloth dress which she wore while teaching in Derry and Ipswich she spun and wove herself. Indeed, she even knit window curtains and gloves, and tried embroidery with some success.

While Mary Lyon was working winters in her school at Buckland, she conceived the vague idea of a "seminary which should be so moderate in its expenses as to be open to the daughters of farmers and artisans, and to teachers who might be mainly dependent for their support on their own exertions"

She brooded over this idea until it became the one question of her life. How can a permanent seminary for women be secured? While she mused, the fire burned; for later, when in Ipswich, she writes, "During the past year my heart has so yearned over the adult female youth in the common walks of life that it has sometimes seemed as though a fire were shut up in my bones."

An attempt to endow the Ipswich school as a permanent seminary

having proved fruitless, Miss Lyon used her fertile mind in planning some way in which to accomplish her object in the western part of the state.

It is hard for us to realize the obstacles which she had to encounter in the indifference,—indeed, opposition,—of the people themselves to female education. This fact, added to the knowledge that she had no money with which to begin such an enterprise, makes her after-work stand out as a stupendous accomplishment.

The plan of having the domestic work done by the pupils, which was original with her, met with the greatest opposition even from those who favored her plans in other directions. But she was confident that this could be well done by the young women themselves, "without any sacrifice of improvement in knowledge or of refinement;" adding, with characteristic shrewdness, "Might not this simple feature do away with much of the prejudice against female education among common people? Oh! if this prejudice could by any means be removed, how much would it do for the cause!" She also favored it as an economical aid to the carrying out of her plan.

That she might devote herself wholly to this work, she resigned her position as teacher in the Ipswich school. This was in 1834, ten years from the time when she first went to assist Miss Grant at Derry.

After her resignation, she called together a few gentlemen in her private parlor to talk over her plan for the future. They promised her their aid and sympathy. She said she must have one thousand dollars to begin with. She was made glad soon after by receiving the first sum of it, — two hundred and sixty-nine dollars, — from the girls of the Ipswich school. She then went from house to house in the town to get subscriptions. Her power was such that she obtained in this way four hundred and seventy-five dollars more. The rest she obtained from former pupils and friends in adjoining towns. Then this courageous woman, in full knowledge that this sum was but a drop in the bucket, so to speak, voluntarily left her good home in Ipswich to settle she knew not where. But the seminary must come; women must be educated, and she must open the way.

I was talking only recently with a lady who said that she remembers perfectly well when Mary Lyon came home, at this time, to her mother's in Ashfield. "Why, I can see her now," said she; "just how she looked and talked. One day, I remember, she came into our house (we lived neighbors to her mother) with a new idea. She had been thinking over what she would do to get more money, when she thought of two maiden aunts of mine who lived in Conway.

So she came in to ask father if he couldn't take her there. Now, he was very busy that day; so he said that I might take her. Of course I was delighted. I can never forget that ride. Miss Lyon, who was then thirty-seven years old, was so full of enthusiasm concerning her plan that, young as I was, I received from her an inspiration in the cause of education for women which has never left me. Later, when she was pleading her cause with my aunts, all that I could do was to look at her in wonder. They pledged for her cause one hundred dollars apiece; and when, soon after, their homestead was burned, and through the failure of one who had the care of their money, they lost that too, they were so determined to fulfill their pledge that they worked with their own hands until every cent was paid. In such a spirit was the work carried on. I also remember how her mother used to come in and talk with my mother about her discouragements. One day, after talking a long while, she threw herself back in her chair and said, 'But Mary will not give up. She just walks the floor, and says over and over again, when all is so dark, 'Commit thy way unto the Lord. He will help thee. Women *must* be educated; they *must* be.' Yes," added the lady, her face shining with the joy of such happy memories, "Yes; Mary Lyon was a woman of faith; and in her own native region she had a trial of it, too. She was called visionary, and considered almost crazy in what she was attempting to do. But she succeeded, and the women of to-day owe to her more than they realize. I can never see Mount Holyoke Seminary without seeing that soul shining in Mary Lyon's face as she talked with my aunts that summer day, so many years ago. That was what gave the seminary birth."

While brooding over this matter, Mary Lyon did not neglect any opportunity the better to fit herself for teaching. She went to Amherst the next winter to continue her studies in chemistry and natural history in the home and under the guidance of Dr. Hitchcock. All the time she was there she used every opportunity to talk with the intelligent people whom she met on her pet subject.

Dr. Hitchcock was ever alive to her cause. At an important meeting to be held at Worcester, it was desired that he and Miss Lyon should be present. So, nothing daunted by the weather (the thermometer was below zero), they left for Worcester in the stage one morning, some three or four hours before sunrise, each wrapped in a buffalo-robe, and filled with the spirit of the work.

That winter decided two important questions,—the location of the seminary at South Hadley, and the name to be given to it, — Mount Holyoke, in honor of the mountain four miles away.

In the following June, Miss Lyon sent out a circular to the women in the vicinity of the Connecticut River, while she wrote to her sister that the work of getting money progressed very slowly; but she hoped that they could begin to build the next spring. "But I do not expect," she writes, "that it will be carried forward as on flowery beds of ease. This I have never asked. I only ask that it may receive the smile of Providence in that way which shall best promote the interests of the great cause to which it is consecrated."

In these waiting months her courage was wonderful and her perseverance amazing. To a friend who was less hopeful, she said, "One of the nicest of mental operations is to distinguish between what is very difficult and what is utterly impossible."

Some small minds criticized her upon her going so much in public with her claims. "What do I that is wrong?" said she. "I ride on the stage-coach without an escort. I go with Mr. Hawks (her agent) to call upon gentlemen of known liberality at their own homes to talk about my work. I talk to a company of women who have been called together to hear of my plan. What harm is there in that? My heart is sick, my soul is pained, with this empty gentility,—this genteel nothingness. I am doing a great work. I can not come down."'

It takes only a little incident like this to picture the condition of women at that time. Verily, all that was required of her was to keep silent and remain at home.

Another evidence of the failure of the people to understand her at that time is seen in the fact that when the Rev. Mr. Hawks gave up all his time to the work of being her agent, they thought that he certainly must be of unsound mind. His own opinion of her is seen when, after her death, he said, "It was my blessed privilege to be associated with Miss Lyon for fourteen years. Nothing she ever said or did gave me the idea that she thought of what would be for her interest, her ease, comfort, or reputation, except as identified with the great object on which her heart was set. I regard her as a most remarkable woman, and believe the revelation of eternity will show her to have been among the most distinguished benefactors of her race." And when he said this, he knew that she had traveled hundreds of miles at her own expense, even prepaying all letter-postage, which was larger then than now.

In the following February, in 1836, Mary Lyon had the joy of seeing the act of incorporation for a seminary pass both houses of the State Legislature and signed by the Governor of the State. To five trustees was given the power to hold real and personal estate not

exceeding in value $100,000, to be used exclusively for educational purposes. Other trustees were added later.

In the following October the corner-stone was laid with impressive ceremonies, in which Mary Lyon stooped down and wrote, "The Lord hath remembered our low estate." She wrote, just after, to a friend, "It was a day of deep interest. The associations were very tender. That is an affecting spot to me. The stones and brick and mortar speak a language which vibrates through my very soul. This will be an era in female education. The work will not stop with this institution." A prophecy only too true when we think of the institutions patterned after that in this and heathen lands.

In order to keep up the interest and procure contributions she addressed another circular to the women. She gives her idea of the institution when she says, "Its grand features are to be an elevated standard of science, literature, and refinement, and a moderate standard of expense, all to be guided and modified by the spirit of the Gospel."

She shows to the full her own magnificent devotion to the work when she exclaims, "Had I a thousand lives, I could sacrifice them all in hardship for its sake. Did I possess the greatest fortune, I could readily relinquish it all and become poor, and more than poor, if its prosperity should demand it."

While she could feel this sublimity of disinterestedness, she still could write to Miss Catherine Beecher, to whom she told her plans,—"I do not mean to ask any other one connected with the institution to make such sacrifices as I can cheerfully make." Noble woman!

The next summer and fall she spent in South Hadley, superintending the building of the seminary, the plan of which she had made herself, with the advice of some friends. Her inventive faculties were well developed, not so much in the line of fanciful creations, which would have made her a poet, as in the power of inventing ways to accomplish great ends.

The work had so progressed that the school was opened in the fall of that year (November 8, 1837), with Miss Lyon as principal, and her friend Miss Caldwell (afterwards Mrs. Cowles, of Ipswich Seminary fame) as associate principal. Before the year closed there were one hundred and sixteen pupils. The three graduates the first year became teachers the second.

One peculiarity of the seminary was that every pupil, even those living in South Hadley, should board in the building. This was the more easily accomplished from the fact that the charge of board and tuition, not including fuel and lights, was placed at the low sum of

sixty dollars a year. This was only a little more than half the expense of the school at Ipswich. Miss Lyon had insisted upon this sum, even against the advice of the trustees; but when at the close of the year she showed to them that the income had not only paid the expenses, but that there was a balance left over toward paying the debt of the building, they acknowledged her superior judgment and foresight. She fixed her own salary at two hundred dollars a year, with board, fuel, and lights; and later, whenever the trustees urged her to take more, she always refused.

But Miss Lyon could not yet see the fruits of her labor and be satisfied. She must yet plan and work, for less than half the money to complete the buildings as she wished had been obtained, and several new plans in the cause of education were yet to be put to the test, chief of which was the plan of domestic work. To this she gave her special attention, and probably expended more mental labor and anxiety to arrange and simplify that system than upon any other branch of the seminary work. But she had her reward in seeing, as the years went on, the system becoming a success and receiving the good-will of those who had most violently opposed it in the beginning.

Her most successful subjects in teaching were Butler's *Analogy* and the natural sciences, particularly chemistry. But her pupils have always remembered more particularly the practical and religious conversations. Her school, from the first, was blessed with the gentle and powerful visits of the Holy Spirit. In one of these hushed times she said to her girls, "Say little, pray much"; and then burst out in one of her heart-felt expressions, "Oh, wonderful, wonderful, this work in which we may share! How would angels delight to have a part in it!"

Her large love and sympathy for her pupils was predominant. A reverend teacher, who is still at Mount Holyoke, said to me recently, "I can never forget the day, in 1848, when as a pupil I came to this seminary. Miss Lyon met me with a face full of love, put her arms around me, kissed me, and then showed me to my room." *A face full of love,*—that tells the secret of her power.

Another old pupil tells how, when she was overwhelmed in a great sorrow, one friend said, "Do this;" another said, "Do that;" but "Miss Lyon just drew me to herself, laid my head upon her breast, and said, 'Rest here, my child, and we will ask God to take care of the whole matter.'" Such an incident speaks volumes.

A valued intimate friend for thirteen years, Mrs. Porter, in some reminiscences, dwells particularly upon this sympathetic quality of her

nature, which she considered all the more remarkable since it was so seldom that this trait was combined "with great energy of character, a ruling mind, and the designing and accomplishing plans of magnitude. In a year when death took some of her pupils and then her mother and sister, she said, "Those were days in which I could not attempt anything except to ask God to hold me by His own hand." Another evidence of the woman of faith.

Some years after her school opened she reveals this secret power which so moulded her when she writes to her friend in Boston, the good Deacon Safford, "Everything I do is such a privilege. It is such a privilege to depend daily and hourly for light, for strength, and for hope on our Heavenly Father, through Jesus Christ our Redeemer." There was no blind groping, no longing even to do something, but a calm, assuring faith, and heroic, noble action.

Mary Lyon had a warm mother-heart, a wealth of nature which would have honored marriage. But she refused one of its tempting offers when she was more than thirty years old, because she felt that the claims for the education of women held her with greater power. She was not satisfied with working only for her own countrywomen. Her heart went out for the education of women in heathen lands. In a year when the missionary spirit seemed to languish, and friends were sadly lacking, she was so impressed with the thought that something must be done that she sat up nights after the girls had retired and poured out her feeling in a little book of one hundred and two pages, which she called *A Missionary Offering*. She ever contributed generously to the cause, giving several years before her death no less than ninety dollars a year to home and foreign missions. Her influence was so powerfully felt that in the seven years before her death the seminary contributed seven thousand dollars to the same cause. And what is yet more remarkable, when she died she left of her earnings, which never exceeded two hundred dollars a year, between two and three thousand dollars for missionary work. While she was doing this much for benevolent objects, she did not neglect the needs of her family. Many a little incident is told of her timely help in educating her nephews and nieces, and in even paying the debts of some less favored relatives. Indeed, her benevolence was perhaps a hindrance to her having even the ordinary interest in her own toilet.

Mrs. Cowles, her Ipswich friend, speaks of this indifference to personal looks when, in some pleasant reminiscences, she says, "In everything pertaining to school she seldom asked council till she had made up her mind, and then what she wanted was approbation;

but in matters of the toilet she was grateful for advice. It was the greatest drudgery of her life to attend to it. In her early and susceptible years her attention was not turned to her appearance. When she stood before the glass her thoughts were at the world's end, or above it. Her room-mate in Ipswich School says she well remembers her standing before the mirror in their room adjusting her bonnet-string, and saying at the same time in an impressive manner, "Well, I *may* fail of heaven, but I shall be very much disappointed if I do;" and then slowly and emphatically repeating, "very much disappointed." Yet she talked to her girls on the necessity of cultivating taste in dress; indeed, in later years, when she saw her work established on firm foundations, her permanent seminary really secured, she was remarkably teachable on the subject, even substituting, at the request of friends, her time-honored turban for a more becoming head dress!

Mary Lyon was thus principal twelve years of the school which she founded. The last year of her life her health was unusually good. It was one of her easiest years, which, as she said, came along now and then.

Her talks with her girls this year were especially fine. Speaking of heaven, one day, she said, "Our mental economy is wonderful, and all its laws will act there in eternal harmony and add bliss and rapture, as I conceive, to that world." In her last talk with them, while one of their number was dying with a malignant erysipelas, which disease gave them much fear, she said, with wonderful power, the immortal words now inscribed on her tombstone, "There is nothing in the universe that I fear but that I shall not know all my duty, or shall fail to do it."

Very soon after, she was taken violently sick, and died of congestion of the brain, March 5, 1849, aged fifty-two years. In her sickness she was delirious most of the time. In a lucid moment she called her nurse to her side and, smiling, said, "I should love to come back and watch over this seminary, but God will take care of it."

One day she was lying unconscious when her pastor came in to see her. He sat down by her side and said, gently, "Christ precious?" The words seemed to arouse her, so much so that she made one great effort, raised both hands and said audibly, "Yes." This was her last word. He then repeated short passages of Scripture, which her countenance showed she heard. He then asked, "Have you trusted Christ too much?" She tried to speak, but could not. Noticing this, he said, "You need not speak. God

can be glorified in silence." Then such an indescribable smile came over her face that the pastor murmured, "Oh! that soul is full of the love of the Savior." In an hour later the woman of faith knew its full fruitions.

She was buried in her loved seminary ground, where a monument was soon after erected to her memory. But the great monument of her life is the seminary itself, which casts its shadow even into foreign lands. And to-day, Mary Lyon, though dead, still speaks the great truth which animated her life on earth, that the realm of the invisible has solid foundations, to be seen only by the eye of faith. It is for us to remember, as we accept the precious legacy of such a life, that on the realization of this truth lies the hope of nations, as well as of individuals.

## THE RELATION OF THE UNIVERSITY TO THE COMMON SCHOOL.[1]

BY COL. WILLIAM PRESTON JOHNSTON.

The topic of this paper is one of great moment in our educational system. To present the question fully would require more time than your patience or the limitations of the occasion would readily allow, but there are some obvious points which occur to me that may do something toward placing the subject in its true light.

It has been said, — and truly, — that universities may exist where there are no common schools, and that the light comes from above; but to have preceded them even, and to have made them possible, is some relation at least. But whether the common schools are the intellectual offspring of the universities, as is the case in all other countries, or, as some may claim, in newer communities, the universities are the product and flower of the common schools, they deal in both cases with the development of the citizen, the one beginning, and the other finishing, his education. The one lays the foundation, the other sets the capstone of the edifice. What is a university? It is an institution representing the best learning and highest teaching power of the community in which it exists. The university in the Middle Ages, with their trivium and quadrivium, taught the best of what was then known; and now, though they fall so far short of their full scope and ideal, they are still the citadels of science, the strongholds of culture and high thought. They constitute that Capitolian Hill from which the standards of the Eternal City are carried down by its panoplied legionaries for service or strife. If the common school is the starting-point, and the university the close, of education, they certainly have a connection and relation. Let us consider what this is.

Education is integral. In whatever terms defined, it is a preparation of the younger generation by an older for the work of life. Some of it is carried on in the streets, — this is unconscious education; some in the shop or office, — this is special. The last of all is the education of the home, which combines all these. What is then left for the school-room? Intellectual training is a comparatively

[1] A paper read by Col. William Preston Johnston, Prest. of Tulane University, New Orleans, La., before the International Congress of Educators, held in that city, Feb., 1885.

small part of the whole. It has monopolized the term "education" to the exclusion of other influences, because, while the others are more or less implicit or indirect, school education is avowedly and aggressively informing, instructively educational in its purpose and methods. It is the preparation for life, so far as it can be given by formal didactic methods.

Where education shall begin, and how far it shall proceed, and by what agencies and studies it must be carried on, will depend on many circumstances in the condition of the community and of the individual. But with each individual mind that enters on this formative process, the progress is, while it lasts, continuous. We differentiate time by day and night, by the seasons, by years, and by cycles, but time itself flows on past our landmarks like a great river. So a human life in its individuality, its continuity, its development, flows on past the landmarks we would set up for it. It is one. It has its dawn, its prime, its matin hour, its noon, its evening, its gloaming, its final shadows, and its curtained darkness in death ; but it is day till the night comes. It is one. So we differentiate the long day of educational preparation which is closed only by the nightfall of death. We mark it off into spaces. We assign this to the nursery, and that to the kindergarten, and still other spaces to more advanced education, and the last of all to the work of life. But still it is essentially one process, — the development of the man.

We must remember that all the agencies we employ in this process, — common school, high school, college, and university, — are but successive mansions in our Father's house, even as the vestibule, the ante-chamber, and the audience-hall lead us to the foot of the great throne, from which is the effluence of all light and knowledge.

The relation of the university to the common schools is through the high school and the college. It is but a higher link in the golden chain that depends from above. It represents the highest phase of formal school education. If any higher is yet to be discovered, it will still belong to the university. The common school, in its different strata, represents the lowest phase, and likewise the broadest, of popular education. Between them are the high school and the college. I take the liberty of quoting from a report which, though printed some eighteen months ago, has not been published :

"The educational system of any people to be complete must constitute a finished and homogeneous structure. It should be a pyramid, with the common schools at its base, and the university at its apex. Such is the much admired German system, which is consistent with itself, and complete

in all its parts. Whether, then, our university owes it existence to legislative wisdom or private munificence, intended, as it is, to perform an important part in the public education of the State, it should recognize fully its relations to every other part of the educational system, and seek to bring each and all into that harmony which will insure improvement. It is both good policy and wise administration to plant the university on the popular affections and interests, and to aid public instruction wherever it can be safely done. Of course, the fundamental principle of such a policy is to make the beneficence of our work as real, expansive, and manifest as human fallibility will permit."

In the first report I made as president of the Louisiana State University, in December, 1880, I set forth the mutual interdependence of all the parts of our educational system and the urgent need of help to our white population in securing its blessing. The following was my language:

"On the free-school system of education rests the hope of the development, if not of the preservation, of our material interests and of our liberties in the United States. This is especially true of the South, and in no State has it greater significance than in Louisiana. The control of the most sacred rights of property, of the subtlest questions of morals and law, of the most delicate functions of polity, and of the fundamentals of civilization itself, are now, perforce, entrusted to the masses, largely made up of ignorant freedmen. It behooves the State, as the conservator of society, to use every power and energy to enlighten this dense and dangerous darkness. It should extend to its colored citizens the benefits of education, and lead them to a higher and purer plane of intelligence. But it should remember that it must depend chiefly upon the white race, with its immemorial right of leadership, for its ability to keep pace in the march of civilization with happier and more favored commonwealths. It should not withhold nor stint its hand in giving to equip these of its sons for the struggle of life. To this end, common schools should invite the humblest of its citizens to learn those elements of knowledge which should be the general heritage of freemen. Higher schools should receive generous State aid, so that those willing to make sacrifices should not be without the opportunity of advancing along the rugged path of knowledge; and, crowning the public-school system as a cap-sheaf, the most fruitful gift of this benignant harvest of learning should be the university. As part of that system and its culmination, the university should open its doors freely to all who aspire to the higher education. It ought not to usurp the functions of the primary school or of the high school, but should reserve its energies for those who have patiently undergone their preliminary training. These it should foster with the most sedulous care, and the university should be the nursery of the teachers of our public schools. From its walls yearly should go forth men

fully equipped by training, general information, and special instruction in the best methods of the normal school, which has its greatest efficiency as a branch in a university. These men should constitute that army of schoolmasters who are to vanquish ignorance in Louisiana."

A king of Sparta, when asked where were its walls, pointed to his soldiers and replied, "These are the walls of Sparta, and every man of them is a brick." So in the great edifice of popular education, every human soul in the community should be built into the solid structure, in its place, at base or at summit, so that all may see that

> "The castle is the king's alone,
> From turret to foundation-stone."

But if the university and the common schools represent successive phases of a man's development, they should not do the same work. One deals with the multitude, with a mighty host, the levy *en masse*, who go out to fight the battle of life. These have but a brief time for disciplined drill. In it they can learn but a few things well, but if these are learned very well, as they may be, they are a great help in the life of the learner; they are sufficient for his purposes as a private in the grand army; and, as in a truly constituted army every private may carry a marshal's baton in his knapsack, so in a free country every citizen, with this start, has his chance, if ability, courage, and good fortune are with him. But though the high school and the college afford the training that fits men to be officers in this army, neither they nor the university can make generals of them, even though it had a power to commission as such.

> "A prince may make a belted knight,
> A marquis, duke, and a' that,
> But an honest man's above his might,
> Guid faith he mauna fa' that."

The king who creates a peer cannot make a gentleman. The school can not make a scholar, because it does not furnish brains to its pupils. The university creates the *élite* corps of culture, the engineers of thought. I would have the approaches to it not along a narrow declivity; but, with its wide gates thrown open to every quarter of the heavens, it should welcome every comer whose faculties and powers are trained for service on the field of life. The university fits him for still more difficult achievements.

The common school, then, gives the elementary education. The secondary school should begin the work of differentiation in courses of study, which branch out as you rise in the scale through high

school and college to the university, where the work becomes special and professional. The common school gives the general education, the secondary schools the higher education, and the university the highest of all.

But the university has still another function, whatever may be its restriction in a highly specialized system, like the Prussian. Here it has much work to do which may be called supplementary, — work which is not done and cannot be done by primary or secondary schools, for lack of means or other sufficient cause.

Permit me to quote myself again : —

"If education has been correctly defined, and the university represents its highest phase, the question naturally arises, Where does this phase commence? In a highly organized society, the whole work of education may be regularly distributed to the primary school, the high school, the college, and the university, with the aid of professional, technical, and other special schools. But in America, and especially in the South, we must do what we can, not what we would. The university is, without exception, obliged to perform the duties of the college, and generally of the high school also. There can be no objection to this if such an institution grasp the whole problem in its entirety and yet recognizes the essential difference between the spirit and methods of its lower and higher departments. A university may begin where its circumstances and the condition of its people require, so only that it shall not close its work without offering to its students those chartered rights to liberal knowledge, that emancipation of thought, which is the true key-note of academic freedom and university life. That this is not the idea of the German university, I admit. That idea involves a complete severance of the gymnasium, or college, from the university. But forms and ideas must yield to actual conditions; and, much as it would shock a German university professor to tell him so, I am sure that for the teacher himself it is a higher discipline to be able and compelled to teach in both the university and the college than in either alone. If a higher discipline, then a higher man is the outcome; and, though the direct results may be less obvious, the indirect evolution of all concerned should be larger."

Now let me illustrate from our work here. If you will pardon me, I will quote from the report already cited as made to my Board, as to one of the functions of a university: "A university should combine in its work three objects, — the higher education of the young, the extension of the area of original research, investigation, and discovery, and the elevation of the public tone and culture. This last is done in part unconsciously and without any direct effort." (The speaker then showed how it was effected through the influence

of the faculty and alumni, and through the influence of a free public library, offering and opening its benefits to all).

This is true also of art galleries and museums. The museum is the workshop of the scientist and the kindergarten of the people. It teaches natural science without a master. The most direct method of reaching the popular mind, however, is through popular lectures. Conducted by able men, they awaken the spirit of inquiry in many breasts, and diffuse important information. This is said to be a difficult community to reach by this method. But if free, and guaranteed by the university, and on subjects interesting to the community, it will, after a while, become the habit and perhaps the fashion to attend them. This university is doing what it can to raise the popular intelligence by free lectures on physiology and hygiene and by free systematic instruction in drawing to teachers, and in night classes for the benefit of mechanics and others.

There is just one other point I wish to allude in a paper which professes to touch the surface of the subject merely. It is the reiterated demand of this or that educator for a university or a college to adopt his standard of scholastic orthodoxy. You shall follow this method or that method, or issue only this degree, and for such and such courses of study; otherwise, you are schismatic, heretical, out of the ring. This is all nonsense. Who shall fix the standards? Certainly not those who are changing color as fast as the forest leaves when the frost comes. Education in America, in the world, is growing. It is feeling the full consciousness of its own expanding power. It has burst its shackles. It feels its strength. The great danger now is that, in the consciousness of new found powers, it may waste its energies in wrong directions; that it may forget the wisdom of the past. But while so much is tentative, while new problems are presented daily for our solution, we must beware of a slavish adoption of models. To do a thing merely because it has been done somewhere else is the worst reason that can be assigned, unless we can show that the situations are exactly the same. You may make your coat of the same material as another man's because he commends its texture, but you will have it cut to fit yourself, and not by his pattern. So we must adapt our educational institution in each particular case to our own wants, and not another's.

Solon made not the best code, but the best code for the Athenians. In arranging our schools, of whatever grade, we have to diagnose the case, as the doctors say. All the circumstances must be studied. We must do the best we can, not the best we would. In striving after ideals, it is not well to forget that we are of the earth,—earthy.

If we have a university or a system of private high schools, and no common schools, it is well to regard the former in framing the latter. If the reverse is the case, we must build on the public schools. In either case, we are bound to regard the social culture and the educational condition of the people for whom we legislate. In a word, we should use a little common-sense; and we need not be discouraged in either common school or university organization, if we fall far short of our hopes and plans and ideals. Experience teaches that such is the common lot; and, if we are more fortunate, a wise humility will lead us to suspect that it is due more to luck than management; or, to express the thought more truly and exactly, that Providence has favored us beyond our deserts. For

"Man proposes, but God disposes."

In a word, then, I may say that a direct relation exists between the university and the common schools as successive phases of educational development, through the secondary schools and colleges, and that the relation should be recognized in the organization and development of each; and, moreover, that where circumstances require it, the university should do all necessary supplementary work within its power.

# A TREATISE ON PSYCHOLOGY.

BY MRS. LOUISA PARSONS HOPKINS.

## CHAPTER VI. — IMAGINATION.

*For Normal Classes, or as a Preparation for Teaching.*

In observing the child's mental activities, we discover very early not only the faculty of memory, but a very strong and active faculty of reproducing the impressions made on the memory. This faculty carries with it an impulse of expression, so that we see the child acting out in his plays the facts of his observation; these facts have left an image of themselves so complete as to be easily and instinctively revived in all their associations of place, time, motion, and relation to other facts. It is this power of complete and active revivability and reproduction to which we give the name of *imagination*.

I see a child playing upon the street. He is absorbed in the idea which he is occupied in expressing. Every movement and posture shows me that the image of a proud and prancing horse fills his mind and demands expression through as complete imitation as he can produce. His imagination is at work and masters all his faculties. Or, perhaps, he imitates the steam-engine, or some other mechanical object, to his mental conception of which he seeks to conform every expression of his body. This mental conception, or image, is a pattern which memory gives him for imitation. To produce this pattern a very complete cognition is necessary; the more complete, the more perfect the imitation, or reproduction. If we have observed a material object in its totality of impression on the sense-perception; if we have so retained it in the mind, in all its surroundings and qualities, that we are able to reproduce it in its entirety, so that it stands before the mind's eye as distinctively as if the senses again perceived it, — then we produce it, not merely by memory, but by imagination. In other words, we have an image in the mind which may serve as well as the reality for actual representation through expression.

This kind of imagination is very fully developed in the child, as is illustrated by his constant representation in his plays of all that he has observed, — things animate and inanimate; nothing seems so foreign to his nature as that he cannot imagine himself to be it and

assume all its qualities, as well as attempt their expression by every faculty he can command. His instinct to invest any material form with the most unnatural and inappropriate qualities, and convert it into a representation of the image in his mind, enters into all his plays and occupations and gives them life and interest. For example, a clothes-pin serves for a baby and a chair for a horse; every form is converted by the power of imagination into a vivid likeness of the conception of the mind based upon the recollection of some observed fact. One quality of the child's imagination is its power of absorbing the child's consciousness; the thing he imagines appears real to him; he loses for the time the distinction between what is actually present to his senses and that memory of the past which is actively employed in presenting the image of which alone he is conscious. This absorbing quality of imagination is apparent also in the mature mind, but the discriminating quality becomes stronger and clearer and there is less confusion of the real with the unreal. This absorption and realization of imaginary ideas leads sometimes to an apparent want of truthfulness, which should be corrected by showing more clearly the distinction between the image and the fact, and not by thrusting on the child's conscience the responsibility of untruthfulness.

The exercise of the imagination in the vivid and thorough recollection of what has been presented to sense-perception gives power to description in writing, talking, or acting; and when the faculties of expression are equal to the presentation of this vivid imagination, the same image is produced in the mind of the witness. The writer, the speaker, the actor, the painter in this way reproduces for others what was his in his memory. Close observation is an essential element of power. The landscape which is faithfully reproduced from memory must have been closely and skillfully observed; the face, the gesture, the voice, natural to the utterance of emotions of various kinds, must be inseparably associated in the mind of the actor with those emotions in order to be faithfully reproduced as an apparent act of nature. In order to develop the imagination of the child, we must, therefore, cultivate the faculty of complete observation, and the acuteness of sense-perception in storing the mind with facts which are to serve as a basis for reproduction. We must do all in our power to encourage in a child the instinct for expression, as effort toward expression gives distinctness to the image and thus develops the power of imagination. To this end, give the child all the opportunity it demands by drawing, moulding, building, singing, acting and coloring; give it necessary

material and necessary tools; train the faculties to the use of tools, and give the mind a knowledge of the qualities of its materials; inculcate the idea of truthfulness and thoroughness, or completeness, in every expression. This connects the working out of the imagination with the sense for conduct and the love of truth.

The plays of the child are nature's methods of development for the imagination; multiply forms and methods in the same direction; follow the individual proclivity as to means; if one child enjoys moulding, another building, another drawing, give each its desired medium of expression, and draw out its native aptness, taste, or genius. Feed the imagination through well-chosen stories or fancies, by poetry, by pictures, by demanding of the child original effort of idea and expression in talking and writing, so as to awaken the responsive enjoyment of others; yet stop short of that excitement of the faculties which disturbs a healthful balance of the physical and mental activity, and especially of that uncontrol of the imagination which tends to confuse the moral ideas. Introduce the exercise of the imagination into every branch of study, as it gives vividness to facts and zest and freshness to the intellectual effort of study, adding enthusiastic enjoyment to the act of learning. Reading, language, geography, and history are most dependent upon the exercise of this faculty, and cannot be profitably or pleasantly pursued without it. Numbers depend much on the imagination for effective study, their processes being invested with interest by presentation through the imagination as connected with real transactions and the business of life.

Imagination is not only the power of complete cognition and representation, but the power also of reconstruction. When various facts of memory have become so habituated to thought as to be unconsciously disintegrated their elements enter spontaneously into new relations and connections so as to gather around a new focus of thought and build a new ideal of imagination; this is an original combination or organization of revived facts of memory and a higher effort of imagination than simple reproduction; it is called the productive or creative imagination, or by some writers, *ideality*. In its most advanced development combined with unusual facility of expression it constitutes genius. For example, an artist may bring together into a new unity fragments of other unities of landscape, reconstructed according to a new harmony, until he produces a composition or image of his own creation, which although not a copy of any real landscape, may be said to be true to nature because faithful in its parts and in its unity to the plan or harmony of nature. Even a

copy of a landscape must be true to this harmony; if it be true only to the details of the landscape, it does not reproduce in the mind the feelings excited by the real landscape, and is, therefore, not true to nature; it is only the artist who sees and embodies even in a copy the key to nature's beauty. The productive imagination makes for its expression a new harmony out of the revived facts of memory. Some philosophers assert that no exercise of the imagination can be called creative, inasmuch as it furnishes no material which has not been stored up by the memory, because the mind cannot form a conception whose elements have not been provided by experience or observation. But is not this new harmony, this new unity, this act of reorganization, a creative act? It furnishes a new ideal of thought, or feeling, which is essentially original, although made up of parts of remembered things. So the act of the magnet in grouping the iron filings into a symmetrical order, so the process of crystallization and polarization, readjusting atoms into harmonious relations, so the assimilative function of the body, which converts to its own uses the changing material of the body, is a creative act, and a fair illustration of the creative power of the imagination. An ideal landscape, an original grouping, so harmonized as to present clearly to the mind a new image or focus of feeling or thought which calls forth responsive emotion, an historical scene conceived by the artist, a personification of some impersonal idea, a symbolic painting or statue, a monument of architecture, a musical composition, a poetic expression of fancy, a character or scene of fiction, a fairy, a faun, a Pegasus, a god,—all these are results of this higher effort of the imagination, which is essentially creative. Poetry, painting, sculpture, architecture, musical composition, dramatic acting, mechanical invention, and even the higher mathematics and the sciences, are all fields for the exercise of this power.

The imagination has its limitations; it can never produce elements which have been altogether outside of its experience, any more than a blind man can conceive of color. Even when it forms a new combination which it invests with a new individuality yet all parts of that combination are furnished by the memory, either conscious or unconscious. The character of a drama or story which is presented so clearly as to become a person in the mind of the reader as well as the writer, like Puck or Uriel, Portia or Shylock, is yet made up of qualities which have been the object of such complete observation as has made them a constituent part of the mind's furniture, and ready to reunite in new forms and processes of unification.

The memory and imagination, so closely related and merging into

each other almost imperceptibly, are yet perfectly distinct in their activity; this distinction is invariably perceived by a sane mind. The degree of activity of imagination possessed by a man need not confuse his recollection; he can always tell with certainty what he remembers and what he merely imagines; his veracity is not affected by his power of imagination. It is essential that we should preserve this clearness of discrimination, and never lose the ability to subordinate the imagination to conscience or to perceive the precise outlines of truth.

The imagination easily yields to the law of habit or automatic tendency; it grows by exercise; it submits to control, and is more effective under the influence of systematic training. The cultivated imagination is superior to the uncultivated; the one is finished, the other crude; the one moulds men and things, the other is wasted; the one bears fruit, the other is comparatively fruitless. Constant effort and labor, training and study, are essential to the best exercise of even the productive imagination. No one achieves distinction in art without persevering work and constant progress in education. The greatest genius imposes the greatest amount of arduous labor on its possessor, and requires persistent practice and intense effort of will for its accomplishments.

Imagination connects itself thoroughly with the moral faculties; if allowed to construct ideals of degradation, or revel in visions of vice or horror, it becomes unable to rise to purer and more spiritual ideas, and *vice versa*, so that it acts with ever-accelerating force to drag down or lift up the soul; it adds wings to simple belief, and brings the unseen vividly to the soul's apprehension; it presents "the substance of things hoped for," and is, therefore, equivalent to faith when applied to the soul's activities; it is as direct a source of inspiration to high thought and conduct as nature has provided, and leads us to the verge of life with joyous expectation. It assists the soul in grouping about the moral ideals the highest conceivable qualities, and makes them facts of consciousness. These ideals of beauty, of harmony, of goodness, of truth, of purity, nourish the soul. The impulse for expression which always accompanies a vivid and active imagination exercises and strengthens the habit of truthfulness through faithfulness of its expression to its ideal. It involves the attempt at utter conformity of the expression to the conception, which is the essence of truthfulness. This conformity must be seen in the details and in the spirit of the product of the imagination, and is the lesson of nature to the soul through art, which is the point of communication between the active imagination of the worker and

the receptive imagination of the observer. Imagination is an active faculty, and must work itself out in forms which shall reach other minds and reproduce in them images. The stronger the faculty of imagination, the more determined its impulse for expression, and the greater its instinctive desire for response. It must reproduce itself not only in forms, but in effects; it must bear fruit, or it will not yield happiness or satisfaction. It therefore educates the soul to activity for others, to reciprocal human relations, to sympathy of thought and feeling. This phase of its development should be encouraged in children. It intensifies our perception of our relations with our fellow-beings by deepeniug and multipiying our points of contact and sympathy, by enabling us to place ourselves in their position and appreciate their motives; it gives us more varied sources of joy and sorrow, makes us capable of stronger and more varied emotions, and more susceptible of impressions; it furnishes a pattern, or ideal for both conduct and art which either may copy by skilled methods and mastery of its material. The mind and soul should be trained to this mastery that they may serve that great automatic power of imagination which is called inspiration when the imagination becomes an unconscious agent of the soul. In such an absorbed and automatic process of the soul, where it connects itself vitally with the highest sources of thought and feeling, great ideals, or patterns, are revealed to man, which subordinate all the faculties of the mind and soul and command their activities. This is the highest development of the human spirit, and authoritative in its expression. So far as it is approximated in any individual life, it compels obedience. "See that thou do all things according to the pattern which I shewed thee in the mount" were the words which defined the obligation of Moses in building the tabernacle, and are pertinent to every one who receives such a pattern for art or conduct.

Dreams are an effect of the uncontrolled imagination, and may be inconsistent with nature and fact. They sometimes rearrange the facts of memory logically, at other times they are without sequence or reason; while they occupy the mind they seem real. A man dreaming of the same scenes every night in continuous order might find the visions of the night to present as real a phase of life to his consciousness as the experiences of his waking life. Somnambulism is the unconscious action of the dream, when the absorbed mind directs the will spontaneously; in such a state memory and reason are preternaturally active, the dreamer speaks fluently, executes feats impossible to his conscious activity, and seems to have perceptions through other means than the senses; at such times it is

dangerous to awaken the sleeper. Revery is similar to dreams ; the working of the imagination is spontaneous, but accompanied by consciousness. Insanity is a state in which the imagination under great excitement carries with it determined conviction of the reality of its apparations and tyrannizes the mind and body as well as the soul, driving the faculties to excessive activity in entire uncontrol of the will.

The bodily functions are powerfully affected by the imagination ; diseases are induced by it, and cures performed. Men have been killed by working upon their imagination, exciting expectation of death. The imagination causes sensations which are generally attributed only to activity of the senses themselves. Optical illusions are produced, sounds inaudible are heard, taste and smell operate, and sensations of heat and cold are felt, although no outward cause exists, but the imagination acts so powerfully on the nerves which perceived those sensations as to originate the appropriate activity of the nerves and produce the result of actuality. Even the muscles are affected to express these sensations and emotions as if called into activity by the natural causes. The mouth waters in thinking of a palatable food, as it does in preparation for mastication ; the face is moved to smile or frown, or the body to conform its gesture and posture, or even to talk and act from the stimulus of imagination alone. It is said, however, that if the optic nerve is destroyed, images of sight are not thereafter reproduced by the imagination ; and so of sound, — the want of the appropriate nerve prevents the formation of the image produced by its activity.

Let me once more call attention to the insensible gradations of the faculties of body, mind, and soul, and their indissoluble connection and order of precedence, passing through incomprehensible steps of transition from lower to higher, each serving its superior, and feeding and nourishing the higher functions of the complex unity of man. Sense-perception supplies memory with forms which feed the imagination and conscience, and through all these faculties, in successive degrees of power, and more and more immediate connection, the soul is nourished and the human being is educated in symmetry.

## *LAKE MISTASSINI.*

*To the President and Members of the Quebec Geographical Society:*

GENTLEMEN: — I have been requested to furnish to your society a report of my recent journey to Lake Mistassini. It gives me great pleasure to comply with this request, but, at the same time, I hope that due allowance will be made for the character of my mission, which necessarily hurried my movements and rendered my observations superficial and incomplete. Moreover, as it was no part of my instructions to explore, it should be understood that statements I have to offer make no pretence to absolute accuracy, and only refer to such salient features of the country through which I passed as would strike any casual observer.

With this preface, I have the honor to report that, having been appointed by Mr. John Bignell, D. & P. L. S., who is the officer at the head of the Mistassini and James Bay Exploring Expedition, to the position of officer in charge of the transport expedition, I left Quebec for Mistassini on June 24, 1884, proceeding by boat as far as Chicoutimi, whence I drove eighty miles to Pointe Bleu on Lake St. John, where I pitched my tent at a convenient spot for my business. I had no sooner camped than I was courteously visited by Mr. John H. Cummins, the officer in charge of the Hudson Bay Company's post at Point Bleu, and Mr. Otis, J. P., who, though absolute strangers to me, generously tendered me every kindness and hospitality, even placing their men and horses at my disposal, for which I am only too glad to have this opportunity of publicly returning them my heartiest thanks.

From Point Bleu, where I organized my party, consisting of nineteen men and six bark canoes, I took my departure on the 16th of July, with eight months' provisions and stores for the main expedition, for whose special use also, on the frequently rough seas experienced on Great Mistassini, the two largest of the six canoes were intended. These two large canoes were manned by six men each, myself being one of the number, and the four smaller ones by two men each. To insure dispatch, as well as to facilitate our journey, we left Lake St. John with all the stores in one load; but when the rapids encountered,—and they were numerous,—were too severe or dangerous, we made two loads.

The route selected by the guide was primarily by way of the

Chamouchouan River, as well on account of its greater directness as of its larger volume of water, which enabled us to take up the two larger canoes with greater facility. Nothing worthy of note presented itself until we reached a few miles below the falls of the Chamouchouan and about fifty from Lake St. John. Here we entered the Hawk Mountains, which vary in height from 350 to 500 feet over the river. At the junction of the Chamouchouan and the Chief rivers, into which the guide, deeming it the best route, next struck, the country is very beautiful, and the soil seemingly excellent. Indeed, all the way up to the Height of Land, the soil seems generally good and about one-third of the region well adapted to settlement. Ascending the Chief River for a short distance, we came on an old abandoned Hudson Bay Company's post, of which the only vestiges remaining are the stone foundations of the house and the cleared land around, which still supports a good growth of hay.

At thirty-five miles from the Chamouchouan, on the 6th of August, I discharged ten of my men, and with the remainder continued my journey toward Mistassini by way of the Sapin Croche River, which was followed to File-Axe Lake, a beautiful sheet of water, the main body of which is about six miles long and the same broad, dotted with many pretty islands and showing a good growth of timber along its shores. After leaving File-Axe Lake, and at no great distance from it, we crossed the so-called Height of Land forming the present northern boundary of this province. Let me here observe that the elevation of this watershed is so trifling as to be scarcely perceptible. In point of fact, one is hardly aware that he has surmounted and passed it until he begins to notice that the waters, instead of flowing southward toward the St. Lawrence by the feeders of the Saguenay, now pursue a contrary direction northward toward Hudson's Bay. Indeed, I question whether in some instances the summit waters do not flow in both ways. I did actually meet *en route* across it a small lakelet, or pond, which my Indian guides declared to have two outlets, one discharging its waters northward and the other southward; but I could not afford time to fully verify their statement. From the Height of Land,—which, by the way, it may be remarked, offers not the slightest difficulty to railway construction,—we descended into Rupert's Land, by way of the Doré or Little Perch River, and, at a distance of some seven or eight miles, entered Foam Bay, the most southwesterly extremity of one of the two great arms into which the nearest and best known, or south-western end, of Great Lake Mistassini is divided by a long, narrow peninsula. Some eighteen miles further brought us to the Hudson Bay Company's Mistassini

post, which is situated on this peninsula, and which was safely reached after a journey of some 300 miles from Lake St. John, on the 10th of September.

I should, perhaps, here add that, in endeavoring to reach Mistassini, my guide could scarcely have pursued a worse route than he actually did. Fortunately the weather, as a whole, was favorable, but the rapids encountered were both exceptionally numerous and exceptionally difficult, entailing a pretty free use of the tow-line, besides a great deal of extra hard poleing and portaging on the men. Nevertheless, I am happy to say that, despite all these drawbacks and hardships, which were exceedingly telling and full of peril, no accidents occurred, and the party were troubled with little sickness. At Mistassini Post, where we were hospitably received and entertained by the factor, Mr. William Miller, the supplies and stores were deposited for the main expedition, which was by that time making its way in canoes under Mr. Bignell toward Mistassini *via* the Bersimis River, this route having been selected for the purpose of connecting with the surveying work already terminated on the occasion of our East Maine Expedition at Lake Manouanis, a distance of some 280 geographical miles by canoe route from the St. Lawrence.

Mistassini Post is composed of a collection of some four or five wooden structures, including the factor's residence, the Company's store, and the residence of two or three assistants and their families, the whole without any stockade or fortification of any other kind, which seems to argue strongly in favor of the peaceable character of the Indians who trade there, and of whom some thirty-five or forty families of the Montagnais tribe usually summer in the neighborhood, living on wild fowl and fish from the lake, and dispersing in autumn throughout the surrounding region to trap and hunt. These, with the few whites at the post and their families, formed the only visible population on the occasion of my visit. Mr. William Miller, who has been the factor in charge for the last eight years, is a hardy, intelligent, and hospitable Arcadian, whose father was a member of one of the early research expeditions for the unfortunate Sir John Franklin, and who is now, I understand, domiciled at James Bay. I was given to understand by him that his Indian neighbors, though of filthy habits, are remarkably honest, and free from any great criminal excesses, an occassional murder at very long intervals being about the only crime to which they can be said to be to any extent addicted. They are nominal Christians, but are still more or less swayed by their old heathenish customs and superstitions, their

medicine men, or magicians, still exercising a powerful influence over them. They are visited once a year by a Protestant clergyman from Rupert's House on James Bay, whence the Post also derives its supplies *via* the Rupert River, which constitutes the discharge of great Lake Mistassini; but, throughout the remainder of the year, prayers are read on each Sabbath at the Post by the factor for their spiritual benefit. For the greater convenience of this praiseworthy exercise, a modest chapel was being added to the buildings of the Post on the occasion of my visit.

There is a certain area of cleared and cultivated land attached to the Post, from which Mr. Miller annually succeeds in raising all the potatoes and many other roots and vegetables needed for local use. He informed me that he had never yet tried to raise grain, but he has sown and harvested a fine crop of peas at full maturity, and has no doubt that grain, especially oats, would succeed fully as well; but, as no cattle of any kind are kept, there is no necessity of trying the experiment, — at least, so far. He also stated that vegetation at Mistassini is usually from ten to fifteen days earlier than at Temiscami, some 125 miles to the north-eastward; and, if the readings of his thermometer are correct, the Mistassini climate must be much milder than is generally supposed, or would seem to be warranted by its high latitude. He kindly furnished me with the following register of its notings during November, 1880:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *Nov.* 2, | 25° | *above, in the shade.* | | | *Nov.* 15, | 23° | *above, in the shade.* | | |
| " 3, | 35° | " | " | " | " 19, | 15° | " | " | " |
| " 4, | 34° | " | " | " | " 23, | 4° | " | " | " |
| " 5, | 41° | " | " | " | " 25, | 1° | *below.* | | |
| " 11, | 32° | " | " | " | " 29, | 14° | " | | |
| " 13, | 20° | " | " | " | " 30, | 12° | " | | |

It is well to remark, however, that Mr. Miller stated that the fall of 1880 had been the mildest within his eight years' experience at Mistassini. The greatest degree of heat on his record was 120° in the sun, at the Post in August, 1879. Personally, I noticed that the air at Mistassini was exceedingly pure and elastic,—such, in fact, as could not fail to prove of a very restorative character to invalids.

It has been mentioned that the Indians summering at the Post subsist largely on the fish which they catch in the great lake. It may be added that the Post also derives a large and important portion of its supplies from the same source, which seems to be inexhaustible as well in its wealth as in its variety. Lake trout, river trout, fresh-water salmon, pike, white fish, perch, all of large size, and a species

called the fresh-water cod-fish, which is said to resemble in every respect the regular cod-fish of the ocean depth, abound, and are caught in large quantities with nets, lines being seldom or ever used, except, perhaps, through the ice in winter.

And, speaking of the ice, I am reminded that Mr. Miller mentioned that it took opposite the Post last fall on the 14th of November; but the main body of the great lake, — if it ever wholly does so, — never freezes before mid-January. Last spring the ice opposite the Post broke up on the 22d of May, which is not much later than on the lakes in this neighborhood; but the main body did not disappear before the 8th of June. The fur-bearing and food-producing animals which inhabit the Mistassini region comprise the caribou, hares, beaver in seeming abundance, otter, lynx, fisher, pine-marten, mink, weasel, muskrat, foxes (red, black, white, silver, and cross), porcupine, skunks, wolf, wolverine, etc.; black bears of unusual size and ferocity. Moose were in olden times plentiful, but of late years appear to have totally disappeared. The birds include the crow, blackbird, golden woodpecker, robin, rossignol, bluebird, wren, blue-jay, magpie; a bird the Indians call "Le Petit Malin," which I take to belong to the Great Gray Shrike family (*Lanius excubitor*), and which artfully captures its prey by deceitful but most natural imitation of the sounds emitted by small birds in distress; the common sandpiper, sanderling, night-hawk, the lannier (*Falco lannarius*), goshawk (*Astur Palumbarius*), the kestrel or windhover (*Falco Tinnunculus*); the great horned owl, also called the great northern owl, which hatches in January, seldom bringing out more than two young, and the male setting on the nest during the absence of the female; geese, ducks, gulls, loons, etc.

The flora of the Mistassini region presents little difference from that on the other side of the Height of Land. All the way up the Chief River I noticed that gooseberries were plentiful, as also red and black currants, high and low-brush cranberries, wild roses, etc. On the Mistassini side my attention was particularly attracted to the *Sarracenia purpura*, of which the root furnishes the greatest remedy known for that dreadful scourge, small-pox. I may mention that, to my own knowledge, this precious root not only saved my younger brother's life, but its use also appears to wholly obviate the unsightly pitting common to the disease, if it is extracted and dried at the proper season. Indeed, I have known many cases which were considered hopeless by medical men, but which were cured by the *Sarracenia purpura;* even Indians, with whom the dread malady so often proves fatal, finding it an absolute specific.

Like the country on the Saguenay, the Mistassini region is, of course, a wooded region, the great sub-Arctic forest still extending far to northward; but, as far as my observations enable me to speak on the subject, I would not call it a lumbering region. The prevailing tree is the canoe berch, or *bouleau*, which grows fully as large as around Lake St. John. There is also an abundance of tamarac, poplar, balsam, and spruce, ranging from seven, eight, and nine inches to twenty-two inches in diameter, but the smaller sizes largely predominating. I saw no pine, but I was told that large areas, probably of the Banksian pine, were to be met with to the northwestward. As to the soil, it seemed to me to be similar to that on the Big Peribonca River from Lake St. John upward for about twelve miles, and well suited for agricultural purposes. I saw very large tracts of this character along and about Great Mistassini, which would be sufficient to form dozens of parishes. But should the main expedition not find the climate suited to successful agriculture and to the location hereafter of a numerous and comfortable population, I am convinced that the Mistassini region, which seems to me to rest on a limestone formation, will prove exceedingly rich in economic minerals.

Now, to resume the thread of my narrative at the point where I digressed from it, on our arrival at Mistassini Post on the 10th of September, I discharged, my remaining men, seven in number; and, while they returned to Lake St. John by the way we had come up, I, with the guide and one man, traveled toward Lake Temiscami to meet the main expedition, as that was one of the most practical routes by which it could first strike Little Mistassini. I should mention, however, that before starting I endeavored to collect from Mr. Miller, his assistants, and the local Indians any information they might possess as to the real size and shape of Great Mistassini; but I utterly failed to obtain anything satisfactory. In point of fact, they were absolutely ignorant as to the extent and configuration of this great mysterious inland sea, knowing little or nothing about it, except the portion in the neighborhood of the Post, and the route to be followed to reach Rupert House on James Bay *via* the Rupert River. They were convinced, however, that the lake was of immense size, but could not give even an approximate idea on the subject. But they mentioned as curious facts suggestive of the vast extent of this unknown sheet of water that, frequently in a perfect calm, the turbulence of its waves would give notice from twelve to fourteen hours of approaching storms, which I believe is the case also with Lake Superior; and that, during the spring freshets, when

the level of Little Mistassini would rise from six and one-half to seven feet, Great Mistassini never rises more than as many inches.

In making for Temiscami, I navigated Great Mistassini for one hundred and twenty miles from Foam Bay, where I struck it first. As far as possible we hugged the southern shore, and consequently had no opportunity of seeing the big rock from which the lake is said to take its Indian name, and which, I understand, lies along the northern coast. At the aforesaid distance of one hundred and twenty miles, I do not believe we had yet reached what might be termed the main body of the great lake. At all events, it seemed to go on constantly enlarging its width, with nothing visible ahead but sky and water. We passed a number of islands, some of them very beautiful. On one of these, to which we were obliged to run for shelter, we were storm-bound for several days, during which the waves ran so high that it was impossible for any craft like a canoe to live out. I also noticed that the waters of Great Mistassini are exceedingly deep as a rule, its basin seeming to sink abruptly from its coast-line, though the latter is low-lying, gradually sloping down to the lake. They offer, too, quite a contrast to those of Lake St. John, being remarkably clear and limpid.

After proceeding one hundred and twenty miles on the great lake, we retraced our route for sixty miles, as it occurred to me that there was another route which the main expedition in coming up might possibly follow. We then effected a crossing to Little Lake Mistassini, a distance of some six miles, by portages and four small lakes, and navigated it for some eighty miles toward its head. The general trend of the smaller lake seems to be the same as that of the great lake, with which it runs parallel from south-west to north-east. About thirty-five miles from its head, the Rupert, coming from the north-eastward, enters it, flowing out of it again on the opposite, or northern, side into Great Mistassini. In fact, both Great and Little Mistassini seem to be expansions of the Rupert, just as the great lakes of the West are expansions of the St. Lawrence. The outlet from the smaller into the larger lake is not more than one and one-fourth miles long, but is very much broken by rapids. Little Mistassini is supposed to be at least one hundred miles long; but, if I saw its greatest width, it is not more than six miles broad at its broadest point. Along the north shore, which I coasted, islands are very numerous. The banks are generally low, and in most places composed of solid limestone, forming a sort of natural wharf, with numerous fissures, varying in width from one and one-half to ten inches. The southern shores present an agreeable

appearance from the north, the land coming down to the water's edge in a gradual slope, and being also splendidly wooded. Where I struck them, near the head, I found them sandy.

We did not run up the Rupert from Little Mistassini, but struck the river higher up by a portage of about two and one-half miles. We then followed the Rupert toward the east for some twenty-five miles, and found it a large and noble stream. Leaving the Rupert, we reached Temiscami Lake on the 23d of September, when we encountered the first hard frost of the season and a snow-fall of one-half an inch. We also found there a deserted Hudson Bay Company post, built of squared spruce logs ; but, although the structure looked old, it seemed still good. We discovered, however, no traces of the main expedition. Nevertheless, we did not abandon hope of meeting it; and, though the region in which we then were was a wild one and perfectly unknown to us, we managed to extricate ourselves very creditably by pushing on through the portages and lakes till we recrossed the Height of Land and struck a good-sized lake, by whose discharge we struck the Shipshaw River, which is a tributary of Lake St. John. In so doing we circled around the head-waters of the Aux Foins, Little Paribonca, and Mistassini rivers, thus further verifying the fact that the latter stream is a mere feeder of the Saguenay and has no connection whatever with the great lakes of the same name in Rupert's Land. I have no doubt that the true reason why this stream was originally called Mistassini was not from any fancied communication existing between it and either Great or Little Mistassini Lake, but because it has been used from time immemorial by the local Indians as their principal route to and from the Mistassini region.

Following the Shipshaw, and at short distances falling into some beautiful lakes varying in size from three and one-half to fifteen miles in length, we noticed that the prevailing character of the soil on the banks was alluvial and evidently good, supporting a growth of black spruce, bouleau, alders, etc. The first lake above Lake Shipshaw was found noteworthy, not only on account of its magnificence as a sheet of water, but also for the veneration which the local Indians seem to entertain for it. It is about eight miles long and three and one-half miles broad. At its outlet there is a native burial place, while all around its shores the traces of old Indian camping places are still visible, some of them very old indeed, while from the trees depend in various ways, in conformity with the aboriginal superstitions, such offerings to the manes of the dead as the skulls of bears, beaver, otter, caribou, horns, etc.; many of the graves being

inclosed with strong pickets and decorated with similar spoils of wild animals, as well as with articles of clothing belonging to the deceased, their canoes and paddles, tobacco and matches wrapped in bark, moccasins, and such like. The Shipshaw River, which flows into the Great Paribonca, is a very large and noble stream, with few rapids or falls. Indeed, the only dangerous or troublesome section of this river is what is called *Les Crans Serrés*, which is a continuous and dangerous rapid of some twenty miles in length. At this point we had to abandon the main river and to follow a chain of portages and lakes, by which detour we were enabled to reach another river, which finally brought us back to the Shipshaw below *Les Crans Serrés*. About six miles further we entered the Large Paribonca, flowing into Lake St. John, where, after about 1,900 miles of canoeing, we reached back safely on the 10th of October, and were again kindly received and hospitably treated by Mr. Cummins, whose name has been thankfully referred to in the first part of my present report.

In the remainder of the journey back to Quebec the Geographical Society is not interested, so that here would probably be the proper place to cut short my somewhat lengthy narrative. Still, as I suspect that your respectful body may be curious to learn my own impression as to the probable size of Great Lake Mistassini, over which so much mystery still hangs, I should, perhaps, add that one very clear morning, while on Little Mistassini, and when about thirty-five miles from its head, we caught glimpses away in the distance of a high range of mountain-peaks to the east, which range seemed to have a general direction from south to north, and which, if continued for any great distance northward, must cut directly across the general trend of Great Mistassini. Of course, I do not pretend that this is the case, but if it prove to be so, my conjecture is that the great lake will be found to extend to the base of this range and probably to run up for a considerable distance along it with a much enlarged breadth. At one hundred and twenty miles from the south-westerly extremity of Great Mistassini we could not perceive these mountains. We only did so, as already stated, at about thirty-five miles from the north easterly end of Little Mistassini, which runs parallel with the great lake, and then, as far as we could judge, they seemed to be fully one hundred and twenty miles distant from us. I readily recognized them from their lofty, bare, bleached granite summits, as the Otish Mountains, which, in 1877, as my father's assistant, I crossed in scaling and exploring the Outarde and Bersimis rivers to ascertain the distance to the Height

of Land, to verify which we had to find the waters flowing into James or Hudson Bay, selecting the East Main River for the purpose.

The following extract from my father's official report to the Honorable the Commissioner of Crown Lands, on the occasion, will be found specially interesting under the circumstances:

"The Otish Mountains, which form the Height of Land, are here bare, rocky, and desolate; we ascended them and found the height to be 13,00 feet above the pass and 3,700 feet above the sea. We were disappointed in having a view from the top, as we were in the clouds. At their base to the north is a small lake, the head of one of the branches of Rupert's River, and at about thirty miles is the Hudson Bay Post 'Nitsequan,' on Rupert's River. This post is supplied from Hudson Bay, and is frequented by about thirty families of Nascapee Indians."

To the foregoing may be added, that where we struck them in 1877, the Otish Mountains are in latitude 52° 30′, and that we found them so steep that, to ascend them, we had to cut steps in the hard snow and ice.

I have omitted to note that, on our return from Mistassini to Lake St. John, we were disappointed in our hopes of meeting the main expedition; but, since my arrival back in Quebec, I have received letters which show that on the 12th of October it had reached Great Lake Manouan. Consequently, it must have arrived and begun work at Great Mistassini long before this.

In conclusion, I have only to add my own impression, — for what it is worth, of course, only, — that the main expedition will find the great unknown lake to be long and relatively narrow; in other words, that it fills a deep, elongated trough, indented with bays. But, until the return of that expedition, it would be idle to indulge in speculations as to the real size and shape of this mysterious inland sea.

FRANCIS H. BIGNELL.

## EX-PRESIDENT GRANT ON POPULAR EDUCATION.

BY PROF. L. F. PARKER.

The dangerous sickness of Ulysses S. Grant recalls the incidents of his eventful and eminently American life. American teachers will never permit their pupils to be unacquainted with his repressive enviroments in early youth, or with the faithful industry and heroic persistence which, in due time, made him the "Great Captain" of the Civil War and the President of the United States.

Though not distinguished as a general scholar, and almost "silent" on topics of general education, the most remarkable speech of his life was concerning common schools; and that was remarkable, not only for what it was in itself, but also for the occasion chosen for its delivery, and for a forgery in its earliest publication which was long undetected. The speech was delivered at Des Moines, Iowa, Sept. 29, 1875, before the Society of the Army of the Tennessee. The secretary of that society, Gen. L. M. Dayton of Cincinnati, published the report of the meeting, and that was circulated some weeks after the delivery of the speech. The address, as it appeared in that report, was the only one ever put in type directly from the author's manuscript. It was as follows:

"*Comrades:*—It always affords me much gratification to meet my old comrades-in-arms of ten to fourteen years ago, and to live over again the trials and hardships of those days, — hardships imposed for the preservation and perpetuation of our free institutions. We belived then, and believe now, that we had a government worth fighting for, and if need be, dying for. How many of our comrades of those days paid the latter price for our preserved Union! Let their heroism and sacrifices be ever green in our memory. Let not the results of their sacrifices be destroyed. The Union and the free institutions for which they fell should be held more dear for their sacrifices. We will not deny to any of those who fought against us any privileges under the Government which we claim for ourselves. On the contrary, we welcome all such who come forward in good faith to help build up the waste places, and to perpetuate our institutions against all enemies, as brothers in full interest with us in a common heritage. But we are not prepared to apologize for the part we took in the great struggle. It is to be hoped that like trials will never befall our country. In this sentiment no class of people can more heartily join than the soldier who submitted to the dangers, trials, and hardships of the camp and the battlefield, on whichever side he may have fought. No class of people are more interested in guarding against a recurrence of those days. Let us then begin by guarding against every enemy threatening the perpetuity of free republican institutions. I do not bring into this assemblage politics, certainly not partisan politics; but it is a fair subject for the deliberation[1] to consider what may be necessary to secure the prize for which they

[1] This sentence has probably lost one letter and two words, and should read, "It is a fair subject for the deliberations of soldiers," etc.

battled. In a republic like ours, where the citizen is the sovereign, and the official the servant, where no power is exercised except by the will of the people, it is important that the sovereign,— the people,— should possess intelligence. The free school is the promoter of that intelligence which is to preserve us as a free nation. If we are to have another contest in the near future of our national existence, I predict that the dividing line will not be Mason and Dixon's line, but between patriotism and intelligence on the one side, and superstitution, ambition, and ignorance on the other. Now in this centennial year of our national existence I believe it a good time to begin the work of strengthening the foundation of the house commenced by our patriotic forefathers one hundred years ago at Concord and Lexington. Let us all labor to add all needful guarantees for the more perfect security of free thought, free speech, and free press, pure morals, unfettered religious sentiment, and of equal rights and privileges to all men irrespective of nationality, color, or religion. Encourage free schools, and resolve that not one dollar of money appropriated to their support, no matter how raised, shall be appropriated to the support of any sectarian school. Resolve that either the State or Nation, or both combined, shall support institutions of learning sufficient to afford every child growing up in the land the opportunity of a good, common-school education, unmixed with sectarian, pagan, or atheistical tenets. Leave the matter of religion to the family circle, the church, and the private school, supported entirely by private contribution. Keep the Church and State forever separate. With these safeguards I believe the battles which created us 'The Army of the Tennessee' will not have been fought in vain."

It was a matter of gratification and surprise that General Grant, their President, should do more than merely allude to education; that he should make it the body and soul of a speech before his veteran soldiers, was a still greater pleasure; that he should give an address on that subject so terse, so comprehensive, so just, was most delightful of all. But that speech, as it first reached the eye of the public, contained one sentence which puzzled and pained the wisest friends of education. A single copy of General Grant's manuscript in pencil had been made, and that copy was the basis of all the reports of the speech printed either in Des Moines, or telegraphed from there at the time of the meeting. As these newspaper reports were in substantial agreement, they probably fairly represented the copy on which they ultimately depended, but strangely falsified the author's thought on one point. By the interpolation of two letters and three words (which are italicized in the following quotation), General Grant was made to say: "Resolve that *n*either the State or Nation, *n*or both combined, shall support institutions of learning *other than those* sufficient," etc.; *i. e.*, Resolve that neither the State nor the Nation shall support either schools or state universities.

This falsified report was telegraphed over this continent, and cabled to the Old World. It crept into magazines, and has been preserved in bound volumes. It was scarcely more than an accident that saved the author's real thought from oblivion. For its preservation we are indirectly indebted to an opponent of higher education by the State. He hastened to say, through a widely circulated journal, that the speech "shows a turning of the tide at hand." "General Grant thinks he sees that popular education must unload the upper tiers of institutions which have been piled upon it

in order to save common schools from Catholic assaults." This *non-sequitur* in logic, and rash acceptance of a report intrinsically improbable, excited one person, at least, to reply. Reflection increased suspicion of the accuracy of the report; suspicion impelled to investigation; investigation resulted in demonstrations as follows:

1. Ex-Gov. S. J. Kirkwood (later Secretary of the Interior), at the request of the writer, addressed to President Grant a letter of inquiry as to his real meaning. The essential portion of his reply (written Nov. 17, 1875) is the following:

> What I said at Des Moines was hastily noted down in pencil and may have expressed my views imperfectly. I have not the manuscript before me, as I gave it to the secretary of the society. My idea of what I said is this: "Resolve that the State or Nation, or both combined, shall furnish to every child growing up in the land the means of acquiring a good common-school education," etc. Such is my idea and such I intended to have said. I feel no hostility to free education going as high as the State or National Government feels able to provide,—protecting, however, every child in the privilege of a common school education before public means are appropriated to a higher education for the few.
>
> Yours truly, U. S. GRANT.

2. The next link in the chain of proof was the report of General Dayton, as quoted first above. He wrote that the report printed by him in the proceedings of the society had been carefully compared with the President's manuscript, and was "an exact duplicate" of it in the paragraph referred to.

3. A photograph of Grant's manuscript next confirmed the fact of the interpolation above-named. General Grant, after writing to Governor Kirkwood as above, obtained his manuscript from General Dayton, and Gen. W. W. Belknap, then Secretary of War, caused several photographs of it to be taken.

4. Mr. Weston Flint of New York added further confirmation by examining the original manuscript in the White House, and said that while in other parts there was an occasional interlineation or erasure, this falsified sentence remained "untouched" and as published by Secretary Dayton.

The facts and history of this famous speech should be preserved for two reasons preëminently: (1) Justice to Ex-President Grant demands it; (2) It is a notable illustration of the ease with which falsehood may, at times, supplant truth.

The original forgery or the error (which ever it was) was published in Des Moines while General Grant was in the city, and was not contradicted by him, even apparently, until he wrote to Governor Kirkwood nearly two months after the delivery of the speech. When Secretary Dayton's report was published it attracted no attention to the change, and was not specially noticed. Chancellor Hammond, now of the St. Louis Law School, has given this incident a place in his edition of *Sieber's Hermeneutics* as involving elements not unlike historic forgeries which have been discovered only after the lapse of centuries.

## REPORT OF THE INTERNATIONAL CONFERENCE ON EDUCATION, LONDON, 1884.

One of the most valuable results of the London Health Exhibit is the series of classified reports. Of these, four volumes are devoted to the International Conference on Education, probably the fullest, freest, and most varied interchange of opinions and experiences on the subject ever recorded. The names of those participating in the conference are a sufficient guarantee of the excellence of the matter. Thus, Technical Instruction was presented by such men as Professors Magnus, Dixon, Woodward of St. Louis, and Giner de Los Rios of Madrid; University Education by such men as Professors Morley, Seeley, Oscar Browning, and Albert Dumont. Amid this imposing array of talent, it was gratifying to find Elementary Instruction commanding no less attention and treated with no less force and eloquence. Said Lord Reary, in his opening address:

"How to observe, and what to observe, in the past and in the present, is the ever-recurring function of education through life. . . . In primary education this truth is more and more recognized; and drawing as well as elementary science and manual work are being put in their proper places. . . . In pleading for the substitution of rational for mechanical methods, I simply desire to rouse those inquisitive tendencies which in many cases now are deadened; to make the primary school not the early grave of individuality, but an attractive spot where the productive use of leisure as well as of the hours devoted to work, coupled with the surroundings of prints and flowers, shall give pleasure to the boys and girls who frequent it."

Naturally, we are curious to see how this beautiful ideal agrees with the real condition of elementary schools in the various countries represented at the Conference. Of the United States, it is unnecessary to speak here. England, as we know, has scarcely passed the mechanical stages of elementary instruction, although a brighter, freer day is dawning there, as was indicated by the discussion of school-room fittings and furnishings, infant training, and kindred topics. It is to certain countries of Continental Europe that we must look for examples of primary instruction conducted in a manner at once natural and effective. The report of this work in Belgium is particularly interesting.

"Not satisfied at Brussels," said M. Ch. Buls, "with the attempt to train the mind alone, they have included in the table of subjects Manual Culture. In endeavoring to enable their pupils to apply their powers to greater profit, they got at first a result they had not looked for. The sons of the farmer and the workman, no longer content to follow the handicraft or exercise the business of their parents, endeavored to find places as

clerks or employés of the government or the municipalities." In his capacity of burgomaster he had a certain number of places at his disposal, and he had innumerable applications from these good people, who constantly urged the fact of the superior education of their sons as a natural reason for making the claim. "You know, Mons. le Bourgmestre, that Pierre has learned to write beautifully, and it is impossible to expect him to remain a workman like his father." In that condition they might make 6,000, 7,000, or 8,000 francs a year, but as employés they would earn 1,200, 1,300, or 1,400 francs a year; and thus the young man becomes a poor employé (*miserable employé*). M. Buls admits that "industrial tasks and manual exercises in a primary school cannot make boys carpenters, saddlers, or locksmiths; but in such schools the powers of observation may be so cultivated that in whatever kind of work the pupil engages, he more quickly becomes expert when once he has entered a workshop." The first error having been repaired, the authorities of Brussels hope now to find a greater disposition of the sons to follow the employments of their parents.

With regard to examinations and competitions, Mr. Buls observed that "the result of these exercises has always been some modification in the syllabus; but it is the teachers who have regulated them for themselves." Compulsion, which is still a word of unpleasant sound to American ears, causes no irritation in the Swiss Republic; obligatory laws are not there regarded as an interference with paternal right or local prerogative, although the schools are supported by local rates. Care, however, is taken that compulsion should not be exercised to force the brains of hungry children.

Mons. Landolt, delegate from Berne, said that in Switzerland education was compulsory. At first, they attempted too much, and had to circumscribe their teaching. It has become the general practice to supplement teaching by a meal of milk and bread or soup, at noon each school-day, for the poor, supplied not by the State, but by voluntary effort. Consequently, there were no hungry stomachs in any of the schools.

The impulse given by M. Buisson to the reform of primary instruction,—an implse that has been felt throughout Europe,—causes the greatest interest to be manifested in all his utterances upon this subject. In response to a call from Mr. Mundella, this gentleman instituted some comparisons between his own country and England:

"The course followed in France,"—to use his own language,—"may be regarded as the exact reverse of that followed in England: Are you prepared to pronounce in favor of gratuitous education? Are you prepared to impose on the State a new burden of some four or five millions sterling, in order to double the number of schools, suppress pupil-teachers, extend the period of school attendance, etc., etc.? The same questions have been asked in France, and the reply has been, Aye, we are prepared to do all this. The difference in the mind of the two peoples was discernible in this as in everything else. In France they began by establishing a principle in its integrity, in its widest sense; they next registered it in the statute-book, and then they endeavored to apply it and to realize it by degrees."

In England the course has been opposite. Reform upon reform, progress upon progress, successive increase, and slow development,—such was the history of the movement outlined by Mr. Mundella.

"Practically," said M. Buisson, "the two nations are at one with regard to the object in view; viz., compulsory, gratuitous, and secular education; only they differ as to the means to be employed to reach their aim and to assert their intention of reaching it. The English are tending to that aim without loudly asserting it, whilst the French are desirous of proclaiming what their object is a long time before they succeed in accomplishing it. On both sides progress is made, but in neither case is it instantaneous. The two nations have no interest in copying one another; let each nation follow its own course, and it will be seen who first shall reach the goal. . . . In France the preliminary condition of all progress is the secularization of education. Such was the aim of the laws of the 16th of June, 1881, and of the 28th of March, 1882, which were the connecting links with the tradition destroyed by the reaction of 1850, and will enable France to resume the march onward which was begun by the Revolution of 1789."

It would be impossible, in a brief review of these volumes, to convey any idea of the discussions upon methods of instruction which formed a feature of the proceedings. I mention only the subject of Geography, to emphasize the fact that all the speakers insisted upon observation as the basis. Brother Arexis (of the Christian Brothers) was particularly instructive on this matter. His remarks are recorded in the report as follows:

"Having long been impressed with the importance of this subject as an element of education, he had carefully studied it in order to be able to teach it intelligently, and had published his first 'Manual of Geography' in 1865; and later, in 1872, a little book, which he held in his hand, entitled *Méthodologie*, in which his views were more fully developed. Geography ought to be based on observation; in fact, it was simply a description of things which exist in nature. As a thing cannot be described until it has been seen, it was evident that geography must proceed upon the sense of sight, and this faculty must be first called into play in teaching it to children; it was a great mistake to begin by making them commit lists of names and figures to memory. The sight being employed first, attention was thus aroused, and afterward the reason and imagination were brought into play, and by reproducing what they had seen, the whole became impressed on the memory."

He gave the following description of a hypsometrical map, or chart, that was placed on exhibition:

"It was a plaster-cast in relief, painted in oil, and capable of being immersed without being spoiled in a kind of aquarium, which might be filled with water so as to submerge successively different portions of the country represented, from the lowest valleys to the point most elevated. The same effect might be produced by pouring in the water. In stopping at each level, it would be seen that the natural features of the country could be made to disapper in the order of their elevation. By means of the hypsometrical chart, it could be demonstrated to the eye that if the bed of the Thames were raised by only twenty metres, all London would be submerged. . . . The chart had induced almost a revolution in the teaching of geography in Belgium, and even in France. In the Belgian Section, by means of a chart and an aquarium in which variations of level to the extent of 253 or 300 metres could be shown, it could be very clearly indicated what an enormous difference would be made in Belgium and many parts of Europe by an elevation of 200 or 300 metres, more or less."

The conference on University Teaching brought together a company of men capable of treating the subject in a manner extremely practical, without being either commonplace or narrow. Comparison of experiences with the view of arriving at sound conclusions seemed to be their aim, rather than the dogmatic assertion of theories. The modern side of university teaching was a principal topic, and it fell to Prof. Henry Morley to discuss the same from the London stand-point. That the paper was clear, strong, and inspiring need not be said to those who know the style and spirit of this author. He summed up all the reasons for the recognition of the modern side in the single sentence, "There are to-day seventy times seven arts in place of seven. We do not," he says, "practically ask now of any man whether he is a master of arts, but over which art or section of knowledge he has attained a little mastery; for I think none of us get much."

The reasons advanced for a teaching university in London are worth the attention of those interested in the project for a national university at our own capital. Prof. Morley notices, particularly in London, "the presence of many and various aids toward the higher education that, if harmonized into one system and thenceforward developed with a reasonable unity of purpose, would of themselves, so far as the modern side of education is concerned, suffice to provide us with the greatest university in the world." Again, he observes, — "Now, all progress depends upon full use of the power of grouping and uniting, for some new purpose of gain, conditions that have arisen independently, and that are daily arising, with little or no reference to the purposes they can be made to serve. For the advancement of our higher education in London, it seems to me that we have now reached a point where we have only to make the right combination of existing conditions and raise London at once into the first rank among university towns."

Prof. Morley contemplates no distinction of sex in this university of the future, and no prudish quibbling over the titles. "The degrees of B. A. and M. A.," he very sensibly says, "would retain their time-honored place as symbols of advance in general culture. There is no reason why women who earn them should have new titles invented for them. The words 'bachelor' and 'master' mean in themselves as little as the word 'arts' itself. We might as well ask that a man who is Bachelor of Arts should be called Husband of Arts when he marries, as propose that a woman should read Bachelor into Spinster." In the discussion called forth by this paper, some interesting statements were made with reference to certain features of German universities not well understood in this country.

Dr. N. Heinemann explained that, "Under the head of 'Philosophische Wissenschaften' were grouped not only what were called in England logic, moral and mental philosophy, but also many cognate subjects. A second group was 'Mathematische Wissenschaften.' Natural Science, with all allied subjects, formed the third group; 'Staats-General-und Gewerbewissen-

schaften' formed the fourth; History and Geography the fifth; 'Kunstlehre und Kunstgeschichte' the sixth; and 'Philologische Wissenschaften' the seventh group." He would have been glad to draw the meeting's attention specially to the fourth and fifth groups, which did not exist in any of the English universities in such completeness, but time did not permit it.

The paper on "Science Teaching in Laboratories," by Fleeming Jenkin, LL.D., F.R.S., was so pertinent to inquiries and discussions going on among ourselves that one cannot but wish it might be presented *in toto* for American readers. Having defined very clearly the province and the limitations of the school as compared with the factory, the writer considered the classification of students. On the one side he placed the select few "born with the natural aptitude for scientific inquiry"; and on the other, "the ordinary well-meaning student who is not destined to become a leading light in science." The latter is not, he believes, so well provided for as is desirable in the arrangements for scientific teaching. The purposes and the methods that, in the judgment of Prof. Jenkin, should characterize the training of "this second-best young man" were set forth in a manner calculated to make an enthusiastic student long to be enrolled in that category. In summing up his views, the writer says:

"Scientific research for the most advanced and best endowed students; measurement classes, open to all, in all branches of exact science, and a common laboratory where apparatus of all kinds can be repaired, adjusted, modified, with the help of highly skilled workmen. This is the general picture which I have endeavored to draw of a college fully equipped for practical scientific teaching. I have not touched on the study of theory, which must precede or accompany the practical training. This lies outside my subject. I have laid most stress on measurement classes, because it has seemed to me that while the importance of this teaching is patent both to men of science and men of practice, the organization of these classes admits of considerable improvement and great extension."

Of the remaining topics considered in this department, perhaps the most interesting to us is that of Political Science as a subject of university instruction. Under this head may be included the paper by Oscar Browning on "The Training by Universities of the Public Servants of the State." Historically, the paper was interesting; as a discussion, it related mainly to conditions peculiar to England, although not wanting in matter of general application. Prof. Browning reminded his hearers that so long as learning was under ecclesiastical control, public servants were trained in the universities. After the Reformation it was not uncommon for men holding high rank in the universities to be employed in public affairs. It was on the Continent that the training for public life received a definite shape. The University of Göttingen in Germany, and that of Strasburg in France,[1] sent out for many years a number of men trained in political and constitutional history, in public law, in the history of diplomacy.

From time to time attempts have been made to secure this kind of edu-

[1] It will be remembered that Strasburg was under French rule from 1681 to 1870.

cation in England. It was one of the uses proposed for the confiscated property of the monasteries in the reign of Henry VIII.,—a purpose which, however, gave way before the desire of the King to enrich his favorites. An effort in the same direction was made by George I., in the two Regius chairs of Modern History and Modern Languages at Oxford and Cambridge. "These provisions," observes Prof. Browning, "seem never to have taken effect. Perhaps the noblemen and fellow-commoners for whom the instruction was provided did not care to receive it. It was not until the professorship was held by Symonds and Smyth that it began to exert any influence upon university studies."

Similar efforts in Scotland have been more satisfactory. Dugald Stewart's house in Edinburgh was the centre of "a knot of eager students, among whom were Lord Brougham, Lord Russell, and Lord Palmerston, who first founded the *Edinburgh Review*, and then established that modification of the Whig party which earned its most signal triumph in the Reform Bill of 1832." The present seems an auspicious moment for reviving the hitherto fruitless efforts in this direction in England.

"There was a time," said Prof. Browning, "when the curriculum of the university did not supply the education necessary for all branches of the public service. That reproach has been removed. To speak of Cambridge alone, the old mathematical and classical courses have been supplemented by the Modern History Tripos, an amended Law Tripos, the Modern Language Tripos, and for the especial benefit of Indian Civil Service students the two Triposes of the Indian and Semetic languages. A diplomatist could not have a better training than the course included in the Modern History and Modern Language Triposes. The History and Law Triposes, or one of the two Eastern language examinations, would do for the Indian Civil Service what used to be done for it at Haidleburg. If necessary, the State might request the University to make a special examination for those destined to its service by combining parts of different examinations."

Prof. Browning proceeded then to consider the advantages that the universities possess for the conduct of examinations for the civil service, which led him to an inquiry that would present itself at the very beginning of such a discussion in our own country: "How will you meet public opinion? Public opinion demands a free and open competition for the public service. How will you defend a less rigid system than that at present adopted from the charge of favoritism and jobbery?"

Possibly, public opinion in America is worthy of the confidence which the speaker professed in English public opinion. "I do not," he says, "think so badly of public opinion. I believe that if a number of educational experts, free from political and party bias, were to declare that the present system of open competition were thoroughly bad; that it did not succeed in selecting the best men for the posts, and that it gave them an inferior education, public opinion would listen to these experts, just as it listened to the advice of Lord Macaulay in establishing these examinations."

The examples of democratic France in fostering "l'Ecole des Sciences

Politiques," and of democratic America in establishing schools of political science at Columbia College and other educational centres, were cited as worthy of imitation.

"Let the State," concluded the speaker, "recognize that our reformed universities have done their best to move with the spirit of an enlightened age, to educate, not for the church alone, but for the State also; let it cast aside the timidity of tradition and the dread of a public opinion which is generally honest, even if it be not subtle, and by occupying the field which has been prepared for it, secure for the public service a class of public men who, if they have not had the benefit of inherited aptitude and of class traditions, have at least imbibed the best results of modern science, and the true patriotism which is based upon common devotion to a common country."

Space will not permit me to do more than glance at the two remaining volumes of the report under consideration. It might be thought that these are of chief interest, since they treat of Intermediate, or Secondary, and Technical Education, in which, at the present time, all is inquiry, experiment, transformation, and adaptation. This it was that determined my choice. By a few words of comment, or by brief extracts, to convey a clear idea of the discussions upon unsettled problems and tentative efforts, is obviously impossible. The report on technical instruction alone fills 648 octavo pages, and contains 26 papers with the debates to which they gave rise. The papers are in great measure descriptive, and so far furnish definite ideas of institutions and enterprises of "pith and moment." Beyond this, they embody a rich fund of observation and experience invaluable to those who seek direction in similar work, provided all the relations and modifying conditions are duly considered.

It must suffice here to record those conclusions with regard to this department of education which, in the language of Philip Magnus, "may be said to have been established," a judgment in which the delegates were apparently agreed. These conclusions are as follows: "1. That all technical education must rest on a basis of sound primary instruction, and that technical teaching can avail little where primary instruction has been neglected; 2. That technical education in all its stages involves the practical teaching of the principles of science; 3. That the importance of a knowledge of foreign languages, particularly of French and German, is daily becoming more recognized as a part of the educational equipment of the technical student."

One other statement from Dr. Magnus ought to be added, as it touches a question of universal and growing importance, and one upon which there seemed to be no division in the conference:

"The results at which we may be said to have arrived with respect to apprenticeship schools are rather negative than positive, and show that for the training of workmen or foremen who are employed in industries in which machinery is largely used, there is no school like the factory or workshop."

The fourth volume of the report contains the views chiefly of English

authorities on the subjects of Intermediate, or Secondary, Education and the Training of Teachers. The papers on the latter topic are calculated to give an American reader an agreeable impression of the work in his own country. An English elementary teacher, principal, assistant, as the case may be, is sure to have had training of some sort, which, unfortunately, is not the case with us. On the other hand, pedagogic training in our own country seems to have reached a higher plane. It enters more fully into the philosophy of the art, concerns itself more with the nature of mind and the reasons of methods, and places less stress upon drill in particular methods. It was natural that the discussions before the conference should refer chiefly to details of the English system, but certain of the papers, notably those by Professor Meiklejohn and Laurie, took a wider range.

The only way out of the difficulties surrounding the questions of training and the other unsolved problems of education was indicated by Prof. Laurie. "For my part," he says, "I do not see how the vexed questions are to be settled except scientifically. Look at the programme of this Conference and you will see how many subjects are still under debate, and there are a hundred others. How am I honestly to settle the question, say, of Latin *versus* Elementary Science, unless I can show how the one acts on the human mind and how the other acts?"

In order that those whose business it is to instruct, and those upon whom the organization of the agencies depends, may be possessed of this fundamental knowledge, the highest and largest resources must be at command. The universities must be enlisted. They must give themselves to the work in the spirit which Prof. Meiklejohn thus describes:

"The universities might now at length say: We will study how all this should be done,—under what conditions, and how it may best be done; we will begin at the beginning, and we will not shut out from the scope of our inquiries any kind of mental procedure whatever. We will test the experience of teachers, and try to make the best experience of all teachers available for each one, — and that the youngest. We will study methods, and try to make our methods living. We will show the best means of having clear perceptions, of forming clear and adequate conceptions, and of coming to true and full judgments. We will show how a teacher may make his school a scene of search, of creative work, — of happy search, and of happy creative work. We will not merely examine schools; we will guide and teach and inspire them. We will, further, produce a body of literature which will inform the young teacher on all that he requires to know; and we will do this, not by fits and starts, but in a systematic, persistent, and vigorous fashion. . . . As we try to connect ourselves with, and to be of use to, all the learned professions, this profession of teaching, — which shapes the intelligence of the nation at each remove, and lies at the basis of all the other professions,—shall now be our special and our sacred care."

Just here is a conclusion that was repeatedly affirmed in the Conference, and which meets us constantly in this report, — namely, that it rests with the universities to devise the means for giving to all scholastic agencies the purpose, consistency, and adaptation, the need of which is everywhere apparent.